F1A55-M LE R2.0

Motherboard

E7504
First Edition
June 2012

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Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Ensure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, ensure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This guide contains the following parts:

- **Chapter 1: Product introduction**

  This chapter describes the features of the motherboard and the new technology it supports. It includes description of the switches, jumpers, and connectors on the motherboard.

- **Chapter 2: BIOS setup**

  This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **ASUS websites**

   The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2. **Optional documentation**

   Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To ensure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task

IMPORTANT: Instructions that you MUST follow to complete a task..

NOTE: Tips and additional information to help you complete a task.

Typography

Bold text	Indicates a menu or an item to select.
Italics	Used to emphasize a word or a phrase.
<Key>	Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key. Example: <Enter> means that you must press the Enter or Return key.
<Key1> + <Key2> + <Key3>	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+).

F1A55-M LE R2.0 specifications summary

APU	AMD® A- & E2- series accelerated processors with AMD® Radeon™ HD 6000 series graphics, up to 4 CPU cores, FM1 package DirectX® 11 support AMD® Turbo Core Technology 2.0 support • **The AMD® Turbo Core Technology 2.0 support depends on the APU types.** • **Refer to www.asus.com for the AMD® CPU support list**
Chipset	AMD® A55 FCH (Hudson D2)
Memory	Dual-channel memory architecture 2 x 240-pin DIMM slots support maximum 32GB unbuffered non-ECC DDR3 2250(O.C.) / 1866 /1600/ 1333/ 1066 MHz memory modules • **The maximum 32GB memory capacity can be supported with 16GB or above DIMMs. ASUS will update the memory QVL once the DIMMs are available in the market.** • **Refer to www.asus.com for the latest Memory QVL (Qualified Vendors List).** • **When you install a total memory of 4GB capacity or more, Windows® 32-bit operating system may only recognize less than 3GB. We recommend a maximum of 3GB system memory if you are using a Windows® 32-bit operating system.**
Graphics	Integrated AMD® Radeon™ HD 6000 series graphics in the Liano APU Dual independent displays support: DVI and D-Sub Supports DVI with max. resolution up to 1920 x 1200 @60Hz Supports D-Sub with max. resolution up to 1920 x 1600 @60Hz Supports Microsoft® DirectX 11 Supports AMD® Dual Graphics technology • **Refer to www.amd.com for the discrete GPUs that support Dual Graphics.**
Multi-GPU support	Supports LucidLogix Virtu MVP Technology • **LucidLogix Virtu MVP supports Windows® 7 operating system.**
Expansion slots	2 x PCIe 2.0 x16 slots with ATI® CrossFireX™ support (blue @x16 mode, black @x4 mode) 1 x PCIe 2.0 x1 slot 1 x PCI slot
Storage	**AMD® A55 FCH southbridge** - 6 x Serial ATA 3.0Gb/s connectors support RAID 0, RAID 1, RAID 10, and JBOD configurations
LAN	Realtek® 8111E/F Gigabit LAN controller
Audio	Realtek ALC887 3-jack 8-channel High Definition Audio CODEC - Supports jack-detection,multi-streaming, and front panel jack retasking
USB	**AMD® A55 FCH southbridge** - 12 x USB 2.0/1.1 ports (6 ports at the mid-board, 6 ports at the back panel)
ASUS unique features	100% All High-Quality conductive polymer capacitors **ASUS Hybrid DIGI+VRM** - 4+2 Phase Power Design **ASUS Unique Technology** - TurboV - EPU

(continued on the next page)

F1A55-M LE R2.0 specifications summary

ASUS unique features	**ASUS Exclusive Features** - Network iControl - AI Suite II - AI Charger - Anti-Surge Protection - ASUS UEFI BIOS EZ Mode **ASUS Quiet Thermal Solution** - ASUS Fanless Design: Stylish heatsink solution - ASUS Fan Xpert **ASUS EZ DIY** - ASUS CrashFree BIOS 3 - ASUS EZ Flash 2 - ASUS My Logo 2
ASUS Exclusive overclocking features	**SFS (Stepless Frequency Selection)** - PCIe frequency tuning from 100MHz up to 200MHz at 1MHz increment **Overclocking Protection** - ASUS C.P.R (CPU Parameter Recall)
Back Panel I/O ports	1 x PS/2 keyboard port 1 x PS/2 mouse port 1 x DVI-D output port 1 x D-Sub output port 1 x LAN (RJ-45) port 6 x USB 2.0/1.1 ports 8-channel Audio jacks
Internal I/O connectors	3 x USB 2.0 connectors support additional 6 USB 2.0 ports 1 x S/PDIF output connector 1 x High-definition front panel audio connector 6 x SATA 3.0Gb/s connectors 1 x LPT connector 1 x COM connector 1 x Front panel connector 1 x Internal speaker connector 1 x CPU fan connector 1 x Chassis fan connector 1 x Power fan connector 1 x 24-pin EATX power connector 1 x 4-pin ATX 12V power connector

(continued on the next page)

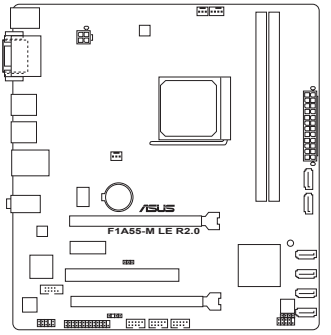
F1A55-M LE R2.0 specifications summary

BIOS features	64Mb Flash ROM, UEFI BIOS, PnP, DMI 2.0, WfM 2.0, ACPI 2.0a, SM BIOS 2.6
Accessories	2 x Serial ATA 3.0Gb/s cables 1 x I/O shield 1 x User Manual 1 x Support DVD
Support DVD	Drivers ASUS PC Probe II ASUS Update Anti-Virus software (OEM version)
Form factor	uATX form factor: 9.6 in x 9.0 in (24.4 cm x 22.9 cm)

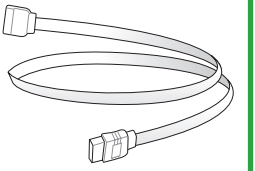
Specifications are subject to change without notice.

Package contents

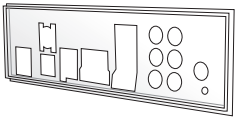
Check your motherboard package for the following items.



ASUS F1A55-M LE R2.0 motherboard

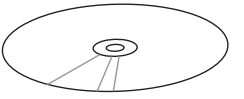


2 x Serial ATA 3.0 Gb/s cables



1 x I/O-Shield

User Guide



Support DVD

- If any of the above items is damaged or missing, contact your retailer.
- The illustrated items above are for reference only. Actual product specifications may vary with different models.

Product introduction

1

1.1 Special features

1.1.1 Product highlights

AMD® A- & E2- series accelerated processors with AMD® Radeon™ HD 6000 series graphics

This motherboard supports AMD® A- & E2- series accelerated processor with AMD® Radeon™ HD 6000 series graphics. This revolutionary APU (Accelerated Processing Unit) combines processing power and advanced DirectX 11 graphics in one small, energy-efficient design to enable accelerated performance and an industry-leading visual experience. It features Dual-channel DDR3 memory support and accelerates data transfer rate up to 5GT/s.

AMD® A55 (Hudson D2) FCH Chipset

AMD® A55 FCH (Hudson D2) is designed to support up to 5GT/s interface and PCI Express 2.0 x 16 (at x4 speed) graphics.

ATI® CrossFireX™ Technology

ATI's CrossFireX™ boosts image quality along with rendering speed, eliminating the need to scale down screen resolution to get high quality images. CrossFireX™ allows higher antialiasing, anisotropic filtering, shading, and texture settings. Adjust your display configurations, experiment with the advanced 3D settings, and check the effects with a real-time 3D-rendered previews within ATI Catalyst™ Control Center.

1.1.2 ASUS Hybrid DIGI+ VRM

Hybrid DIGI+VRM, a unique ASUS-exclusive design on ASUS motherboards with the AMD A55 chipset, creates an all-around platform for a diverse range of applications, including gaming, multimedia, and productivity. It allows APU voltage and VRM frequency adjustments via preset modes and user-defined profiles. It also offers a broad range of adjustable power options to create more headroom for flexible system tuning.

*** Hybrid DIGI+ VRM functions are also available in FM1 socket compatible CPUs.**

EPU

EPU (Energy Processing Unit), the world's first real-time system power-saving chip, automatically detects the current system load and intelligently moderates power usage. It offers a system-wide energy optimization, reduces fan noise, and extends the component's lifespan.

1.1.3 ASUS Exclusive features

Network iControl

Network iControl is an intuitive one-step network control center that makes it easier for you to manage your bandwidth and allows you to set, monitor, and schedule the bandwidth priorities for your network programs. It allows you to automatically connect to a PPPoE network for a more convenient online experience.

100% All High-quality Conductive Polymer Capacitors

This motherboard uses all high-quality conductive polymer capacitors for durability, improved lifespan, and enhanced thermal capacity.

Ai Charger

Ai Charger is ASUS fast-charging software that supports iPod, iPhone, and iPad.

- Check your USB mobile device if it fully supports the BC 1.1 function.
- The actual charging speed may vary with your USB device's conditions.

ASUS UEFI BIOS (EZ Mode)

ASUS UEFI BIOS, a UEFI compliant architecture, offers the first mouse-controlled intuitive graphical BIOS interface that goes beyond the traditional keyboard-only BIOS controls, providing you with more flexibility, convenience, and easy to navigate UEFI BIOS than the traditional BIOS versions. It offers you with dual selectable modes and native support for hard drives larger than 2.2 TB.

ASUS UEFI BIOS includes the following new features:

- F12 BIOS snapshot hotkey
- F3 Shortcut for most accessed information
- ASUS DRAM SPD (Serial Presence Detect) information detecting faulty DIMMs, and helping with difficult POST situations.

ASUS TurboV

With its user-friendly interface, ASUS TurboV offers you the adrenaline rush of real-time overclocking without exiting or rebooting the OS. It also provides you with the ASUS OC profiles for the best overclocking settings in different scenarios.

ASUS Anti-Surge Protection

This special design protects expensive devices and the motherboard from damage caused by power surges from switching power supply unit (PSU).

AI Suite II

With its user interface, ASUS AI Suite II integrates several ASUS utilities and allows you to launch and operate these utilities simultaneously. It allows you to configure the overclocking settings, adjust the frequencies and related voltages, remotely control the system via a mobile device, and other easy-to-use helpful utilities.

Fan Xpert

ASUS Fan Xpert intelligently allows you to adjust the CPU and chassis fan speeds based on different ambient temperatures, resulting to a quiet and cool computing environment.

ASUS EZ Flash 2

ASUS EZ Flash 2 is a user-friendly utility that allows you to update the BIOS without using a bootable floppy disk or an OS-based utility.

ASUS MyLogo 2™

Turn your favorite photos into 256-color boot logos to personalize your system.

ASUS CrashFree BIOS 3

ASUS CrashFree BIOS 3 is an auto-recovery tool that allows you to restore a corrupted BIOS file using the bundled support DVD or a USB flash disk that contains the BIOS file.

C.P.R. (CPU Parameter Recall)

The BIOS C.P.R. feature automatically restores the CPU default settings when the system hangs due to overclocking failure. C.P.R. eliminates the need to open the system chassis and clear the RTC data. Simply shut down and reboot the system, and the BIOS automatically restores the CPU parameters to their default settings.

ErP ready

The motherboard is European Union´s Energy-related Products (ErP) ready, and ErP requires products to meet certain energy efficiency requirements in regards to energy consumptions. This is in line with ASUS vision of creating environment-friendly and energy-efficient products through product design and innovation to reduce carbon footprint of the product and thus mitigate environmental impacts.

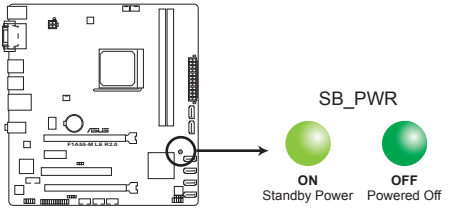
1.2 Before you proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Unplug the power cord from the wall socket before touching any component.
- Before handling components, use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, to avoid damaging them due to static electricity.
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.

Standby Power LED

The motherboard comes with a standby power LED that lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.



F1A55-M LE R2.0 Onboard LED

1.3 Motherboard overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

Ensure that you unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components.

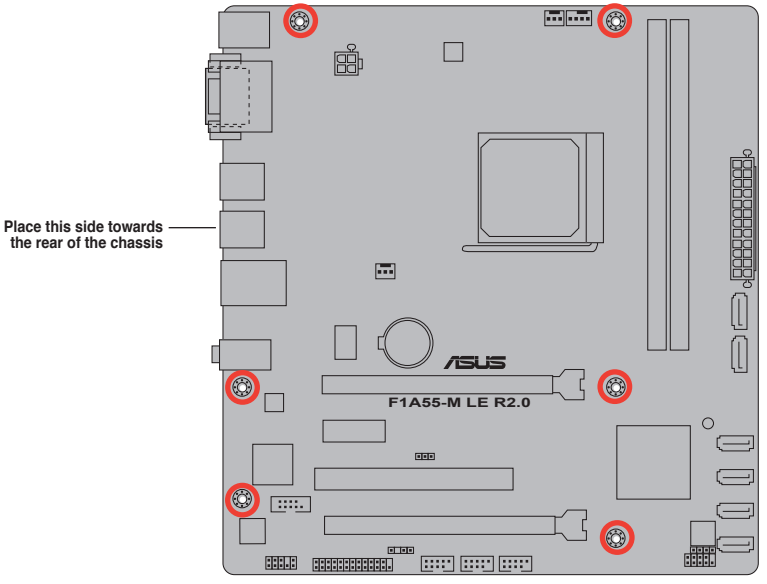
1.3.1 Placement direction

When installing the motherboard, ensure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

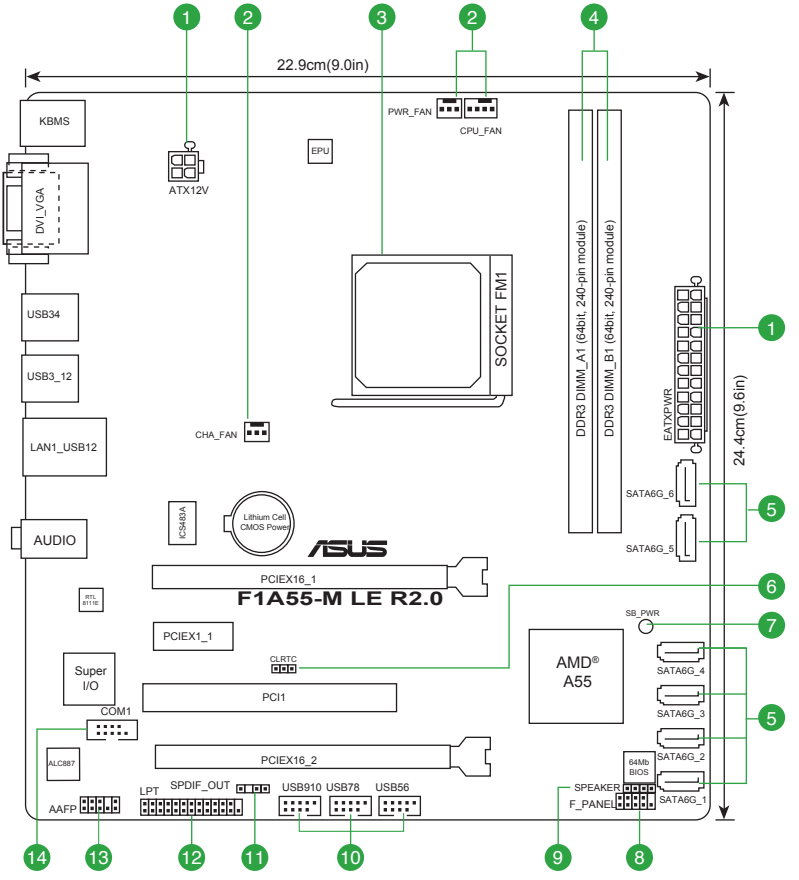
1.3.2 Screw holes

Place six screws into the holes indicated by circles to secure the motherboard to the chassis.

Do not overtighten the screws! Doing so can damage the motherboard.



1.3.3 Motherboard layout

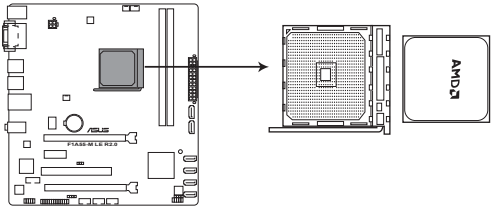


1.3.4 Layout contents

Connectors/Jumpers/Slots/LED		Page
1.	ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)	1-27
2.	Power, CPU, and chassis fan connectors (3-pin PWR_FAN, 4-pin CPU_FAN and 3-pin CHA_FAN)	1-26
3.	AMD FM1 socket	1-8
4.	DDR3 DIMM slots	1-11
5.	SATA 3.0Gb/s connectors (7-pin SATA3G_1~6)	1-28
6.	Clear RTC RAM (3-pin CLRTC)	1-23
7.	Standby power LED (SB_PWR)	1-4
8.	System panel connector (10-1 pin F_PANEL)	1-30
9.	Speaker connector (4-pin SPEAKER)	1-26
10.	USB 2.0 connectors (10-1 pin USB56, USB78, USB910)	1-32
11.	Digital audio connector (4-1 pin SPDIF_OUT)	1-31
12.	LPT connector (26-1 pin LPT)	1-30
13.	Front panel audio connector (10-1 pin AAFP)	1-31
14.	Serial port connector (10-1 pin COM1)	1-29

1.4 Accelerated Processing Unit (CPU)

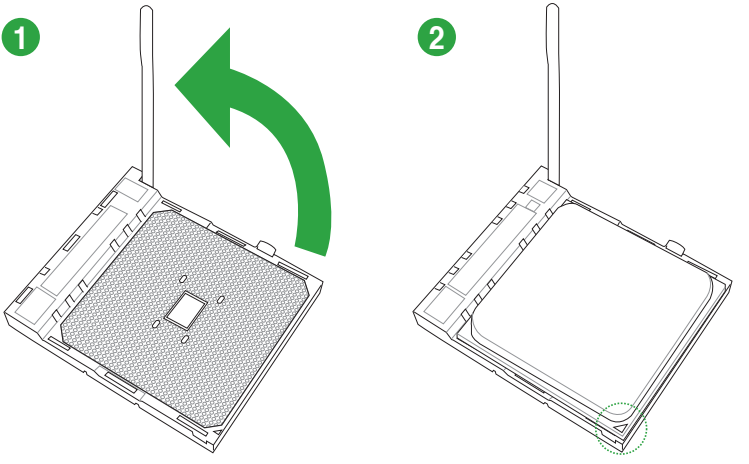
The motherboard comes with an FM1 socket designed for AMD® A- & E2-series accelerated processors with AMD® Radeon HD 6000 series graphics.

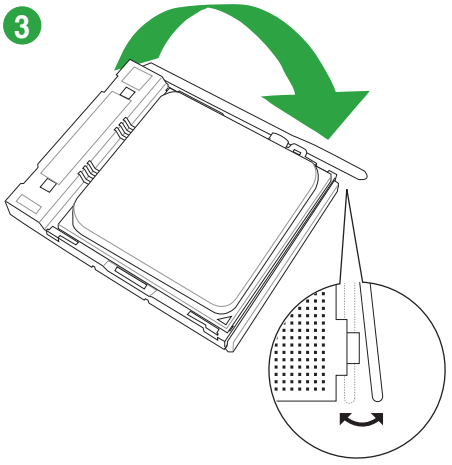


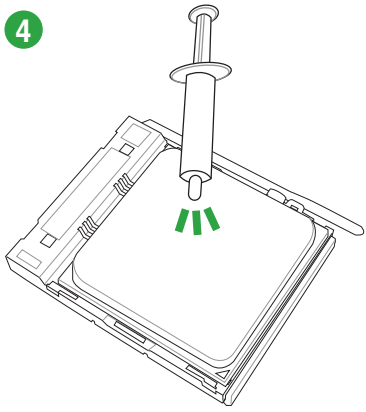
F1A55-M LE R2.0 CPU socket FM1

1.4.1 Installing the APU

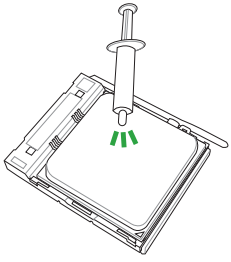
Ensure that you use a CPU designed for the FM2 socket. The APU fits in only one correct orientation. DO NOT force the APU into the socket to prevent bending the connectors on the socket and damaging the APU!





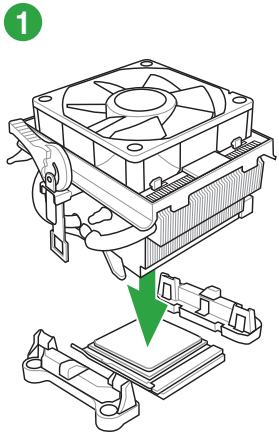


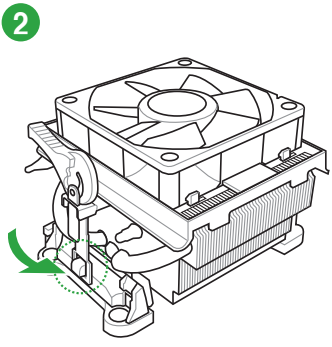
1.4.2 APU heatsink and fan assembly installation

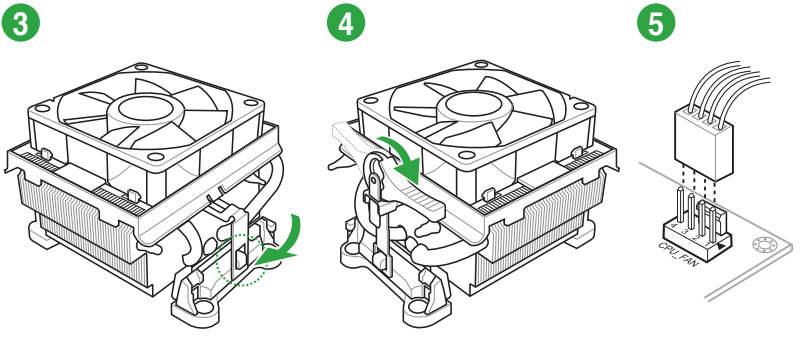


Apply the Thermal Interface Material to the APU heatsink and APU before you install the heatsink and fan if necessary.

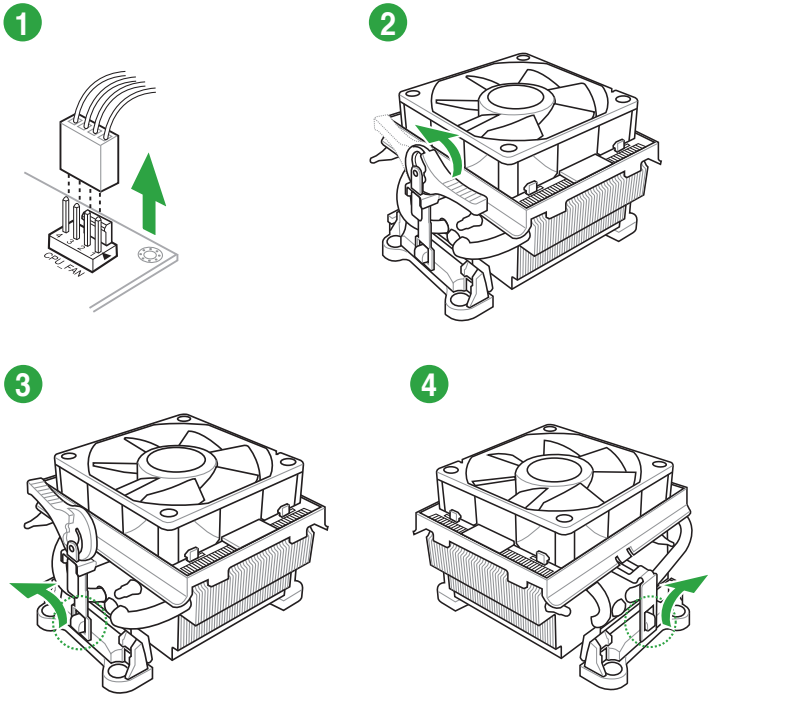
To install the APU heatsink and fan assembly







To uninstall the APU heatsink and fan assembly



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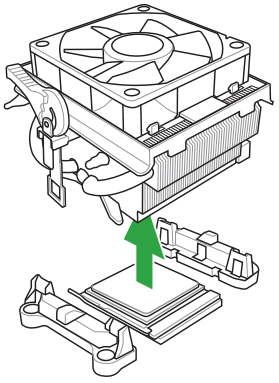


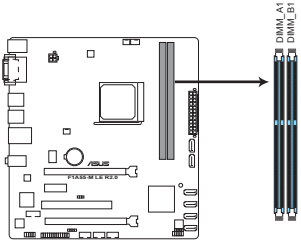
1.5 System memory

1.5.1 Overview

This motherboard comes with four Double Data Rate 3 (DDR3) Dual Inline Memory Modules (DIMM) sockets.

A DDR3 module has the same physical dimensions as a DDR2 DIMM but is notched differently to prevent installation on a DDR2 DIMM socket. DDR3 modules are developed for better performance with less power consumption.

The figure illustrates the location of the DDR3 DIMM sockets:



Channel	Sockets
Channel A	DIMM_A1
Channel B	DIMM_B1

F1A55-M LE R2.0 240-pin DDR3 DIMM sockets

1.5.2 Memory configurations

You may install 1GB, 2GB, 4GB, 8GB, and 16GB unbuffered non-ECC DDR3 DIMMs into the DIMM sockets.

- Memory module with memory frequency higher than 2133 MHz and its corresponding timing or the loaded XMP profile is not the JEDEC memory standard. The stability and compatibility of these memory modules depend on the CPU's capabilities and other installed devices.
- You may install varying memory sizes in Channel A and Channel B. The system maps the total size of the lower-sized channel for the dual-channel configuration. Any excess memory from the higher-sized channel is then mapped for single-channel operation.
- According to Intel CPU specification, DIMM voltage below 1.65V is recommended to protect the CPU.
- Always install DIMMs with the same CAS latency. For optimal compatibility, we recommend that you install memory modules of the same version or date code (D/C) from the same vendor. Check with the retailer to get the correct memory modules.
- Due to the memory address limitation on 32-bit Windows® OS, when you install 4GB or more memory on the motherboard, the actual usable memory for the OS can be about 3GB or less. For effective use of memory, we recommend that you do any of the following:
  - Use a maximum of 3GB system memory if you are using a 32-bit Windows® OS
  - Install a 64-bit Windows® OS when you want to install 4GB or more on the motherboard.
- This motherboard does not support DIMMs made up of 256 megabits (Mb) chips or less.
- The maximum 32GB memory capacity can be supported with 16GB or above DIMMs. ASUS will update the memory QVL once the DIMMs are available in the market.

- The default memory operation frequency is dependent on its Serial Presence Detect (SPD), which is the standard way of accessing information from a memory module. Under the default state, some memory modules for overclocking may operate at a lower frequency than the vendor-marked value. To operate at the vendor-marked or at a higher frequency, refer to section **2.4 Ai Tweaker menu** for manual memory frequency adjustment.
- For system stability, use a more efficient memory cooling system to support a full memory load (2 DIMMs) or overclocking condition.

F1A55-M LE R2.0 Motherboard Qualified Vendors Lists (QVL)

DDR3-2250 (O.C.) MHz capability

Vendors	Part No.	Size	SS/ DS	Chip Brand	Chip NO.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMMs
KINGSTON	KHX2250C9D3T1K2/4GX(XMP)	4GB (2x 2GB)	DS	-	-	-	1.65V	•	•

DDR3-2000 (O.C.) MHz capability

Vendors	Part No.	Size	SS/ DS	Chip Brand	Chip No.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMM
Apacer	78.AAGD5.9KD(XMP)	6GB(3 x 2GB)	DS	-	-	9-9-9-27	1.65V	•	•
CORSAIR	CMT6GX3M3A 2000C8(XMP)	6GB (3 x 2GB)	DS	-	-	8-9-8-24	1.65V	•	•
G.SKILL	F3-16000CL9D-4GB FLS(XMP)	4GB (2 x 2GB)	DS	-	-	9-9-9-24	1.65V	•	•
G.SKILL	F3-16000CL6T-6GB PIS(XMP)	6GB (3x 2GB)	DS	-	-	6-9-6-24	1.65V	•	•
GEIL	GUP34GB2000 C9DC(XMP)	4GB (2 x 2GB)	DS	-	-	9-9-9-28	1.65V	•	•
KINGSTON	KHX2000C9AD3 T1K2/4GX(XMP)	4GB (2x 2GB)	DS	-	-	-	1.65V	•	•
KINGSTON	KHX2000C9AD3 W1K2/4GX(XMP)	4GB (2x 2GB)	DS	-	-	-	1.65V	•	•
KINGSTON	KHX2000C9AD3 T1K2/4GX(XMP)	4GB (2 x 2GB)	DS	-	-	9	1.65V	•	•
KINGSTON	KHX2000C9AD3 W1K3/6GX(XMP)	6GB (3x 2GB)	DS	-	-	-	1.65V	•	•
KINGSTON	KHX2000C9AD3 T1K3/6GX(XMP)	6GB (3x 2GB)	DS	-	-	-	1.65V	•	•
OCZ	OCZ3XTEP200 0C9LV4GK	4GB (2 x 2GB)	DS	-	-	9-9-9-24	1.65V	•	•
Transcend	TX2000KLN-8GK(XMP)	8GB (2 x 4GB)	DS	-	-	-	1.6V	•	•
PATRIOT	PVT36G2000LLK	6GB (3 x 2GB)	DS	-	-	8-8-8-24	1.65V	•	•

DDR3-1866 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip No.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMM
CORSAIR	CMT4GX3M2A 1866C9(XMP)	4GB (2 x 2GB)	DS	-	-	9-9-9-24	1.65V	•	•
CORSAIR	CMT6GX3MA 1866C9(XMP)	6GB (3 x 2GB)	DS	-	-	9-9-9-24	1.65V	•	•
CORSAIR	CMZ8GX3M2A 1866C9(XMP)	8GB (2 x 4GB)	DS	-	-	9-10-9-27	1.50V	•	•
G.SKILL	F3-14900CL9D-8G BXL(XMP)	8GB (2 x 4GB)	DS	-	-	9-10-9-28	1.5V	•	•
KINGSTON	KHX1866C9D3T1 K3/3GX(XMP)	3GB (3 x 1GB)	SS	-	-	-	1.65V	•	•
KINGSTON	KHX1866C9D3T 1K3/6GX(XMP)	6GB (3 x 2GB)	DS	-	-	-	1.65V	•	•
OCZ	OCZ3G1866 LV4GK	4GB (2 x 2GB)	DS	-	-	10-10-10-27	1.65V	•	•
OCZ	OCZ3P1866C9 LV6GK	6GB (3 x 2GB)	DS	-	-	9-9-9-28	1.65V	•	•

DDR3-1600 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip No.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMM
A-Data	AX3U1600XB2 G79-2X(XMP)	4GB(2 x 2GB)	DS	-	-	7-9-7-21	1.55V-1.75V	•	•
A-Data	AX3U1600GC4 G9-2G(XMP)	8GB(2 x 4GB)	DS	-	-	9-9-9-24	1.55V-1.75V	•	•
A-Data	AX3U1600XC4 G79-2X(XMP)	8GB(2 x 4GB)	DS	-	-	7-9-7-21	1.55V-1.75V	•	•
CORSAIR	TR3X3G1600 C8D(XMP)	3GB(3 x 1GB)	SS	-	-	8-8-8-24	1.65V	•	•
CORSAIR	CMD12GX3M6A 1600C8(XMP)	12GB(6x2GB)	DS	-	-	8-8-8-24	1.65V	•	•
CORSAIR	CMP4GX3M2C 1600C7(XMP)	4GB(2 x 2GB)	DS	-	-	7-8-7-20	1.65V	•	•
CORSAIR	CMX4GX3M2A 1600C9(XMP)	4GB(2 x 2GB)	DS	-	-	9-9-9-24	1.65V	•	•
CORSAIR	TR3X6G1600 C8 G(XMP)	6GB(3 x 2GB)	DS	-	-	8-8-8-24	1.65V	•	•
CORSAIR	TR3X6G1600 C8D G(XMP)	6GB(3 x 2GB)	DS	-	-	8-8-8-24	1.65V	•	•
CORSAIR	CMP8GX3M2A 1600C9(XMP)	8GB(2 x 4GB)	DS	-	-	9-9-9-24	1.65V	•	•
CORSAIR	CMX8GX3M4A 1600C9(XMP)	8GB(4 x 2GB)	DS	-	-	9-9-9-24	1.65V	•	•
Crucial	BL25664BN 1608.16FF(XMP)	6GB(3 x 2GB)	DS	-	-	-	-	•	•
G.SKILL	F3-12800CL9D-2GBNQ(XMP)	2GB(2 x 1GB)	SS	-	-	9-9-9-24	1.5V	•	•

(continued on the next page)

DDR3-1600 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip No.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMM
G.SKILL	F3-12800CL7D-4G BRH(XMP)	4GB (2 x 2GB)	SS	-	-	7-7-7-24	1.6V	•	•
G.SKILL	F3-12800CL7D-4GBECO(XMP)	4GB (2 x 2GB)	DS	-	-	7-7-8-24	XMP 1.35V	•	•
G.SKILL	F3-12800CL7D-4GBRM(XMP)	4GB (2 x 2GB)	DS	-	-	7-8-7-24	1.6V	•	•
G.SKILL	F3-12800CL8D-4GBRM(XMP)	4GB (2 x 2GB)	DS	-	-	8-8-8-24	1.60V	•	•
G.SKILL	F3-12800CL9D-4GBECO(XMP)	4GB (2 x 2GB)	DS	-	-	9-9-9-24	XMP 1.35V	•	•
G.SKILL	F3-12800CL9D-4GBRL(XMP)	4GB (2 x 2GB)	DS	-	-	9-9-9-24	1.5V	•	•
G.SKILL	F3-12800CL9T-6GBNQ(XMP)	6GB (3 x 2GB)	DS	-	-	9-9-9-24	1.5V~ 1.6V	•	•
G.SKILL	F3-12800CL7D-8GBRH(XMP)	8GB (2 x 4GB)	DS	-	-	7-8-7-24	1.6V	•	•
G.SKILL	F3-12800CL8D-8GBECO(XMP)	8GB (2 x 4GB)	DS	-	-	8-8-8-24	XMP 1.35V	•	•
G.SKILL	F3-12800CL9D-8GBRL(XMP)	8GB (2 x 4GB)	DS	-	-	9-9-9-24	1.5V	•	•
GEIL	GET316GB1600 C9QC(XMP)	16GB (4x 4GB)	DS	-	-	9-9-9-28	1.6V	•	•
GEIL	GV34GB1600 C8DC(XMP)	2GB	DS	-	-	8-8-8-28	1.6V	•	•
Kingmax	FLGE85F-B8KJ9A FEIS(XMP)	2GB	DS	-	-	-	-	•	•
KINGSTON	KHX1600C9D3 K3/12GX(XMP)	12GB (3x4GB)	DS	-	-	9-9-9-27	1.65V	•	•
KINGSTON	KHX1600C9D3 T1BK3/12GX(XMP)	12GB (3x4GB)	DS	-	-	9-9-9-27	1.65V	•	•
KINGSTON	KHX1600C9AD3/2G	2GB	DS	-	-	-	1.65V	•	•
KINGSTON	KVR1600D3 N11/2G-ES	2GB	DS	KTC	D1288JPN DPLD9U	11-11-11-28	1.35V-1.5V	•	•
KINGSTON	KHX1600C7D3K2/ 4GX(XMP)	4GB (2x 2GB)	DS	-	-	-	1.65V	•	•
KINGSTON	KHX1600C8D3K2/ 4GX(XMP)	4GB (2 x 2GB)	DS	-	-	8	1.65V	•	•
KINGSTON	KHX1600C8D3T1K2/ 4GX(XMP)	4GB (2 x 2GB)	DS	-	-	8	1.65V	•	•
KINGSTON	KHX1600C9D3K2/ 4GX(XMP)	4GB (2 x 2GB)	DS	-	-	9	1.65V	•	•
KINGSTON	KHX1600C9D3LK2/ 4GX(XMP)	4GB (2 x 2GB)	DS	-	-	9	XMP 1.35V	•	•
KINGSTON	KHX1600C9D3X2K2/ 4GX(XMP)	4GB (2 x 2GB)	DS	-	-	9-9-9-27	1.65V	•	•
KINGSTON	KHX1600C9D3T1K3/ 6GX(XMP)	6GB (3x 2GB)	DS	-	-	-	1.65V	•	•
KINGSTON	KHX1600C9D3K3/ 6GX(XMP)	6GB(3 x 2GB)	DS	-	-	9	1.65V	•	•

(continued on the next page)

DDR3-1600 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip No.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMM
KINGSTON	KHX1600C9D3 T1BK3/6GX(XMP)	6GB(3 x 2GB)	DS	-	-	9-9-9-27	1.65V	•	•
KINGSTON	KHX1600C9D3K2/ 8GX(XMP)	8GB (2 x 4GB)	DS	-	-	9-9-9-27	1.65V	•	•
OCZ	OCZ3G1600LV3GK	3GB (3 x 1GB)	SS	-	-	8-8-8-24	1.65V	•	•
OCZ	OCZ3BE1600 C8LV4GK	4GB (2 x 2GB)	DS	-	-	8-8-8-24	1.65V	•	•
OCZ	OCZ3BE1600 LV4GK	4GB (2 x 2GB)	DS	-	-	7-7-7-24	1.65V	•	•
OCZ	OCZ3G1600 4GK	4GB (2 x 2GB)	DS	-	-	8-8-8-24	1.7V	•	•
OCZ	OCZ3OB1600 LV4GK	4GB (2 x 2GB)	DS	-	-	-	1.65V	•	•
OCZ	OCZ3G1600 LV6GK	6GB (3 x 2GB)	DS	-	-	8-8-8-24	1.65V	•	•
Super Talent	WA160UX6G9	6GB (3 x 2GB)	DS	-	-	9	-	•	•

DDR3-1333 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip No.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMM
A-Data	AD31333001GOU	1GB	SS	A-Data	AD30908C8D-151C E0906	-	-	•	•
A-Data	AD63I1B0823EV	2GB	SS	A-Data	3CCA-1509A	-	-	•	•
A-Data	AXDU1333GC2 G9-2G(XMP)	4GB (2 x 2GB)	SS	-	-	9-9-9-24	1.25V-1.35V (low voltage)	•	•
A-Data	AD63I1C1624EV	4GB	DS	A-Data	3CCA-1509A	-	-	•	•
Apacer	78.A1GC6.9L1	2GB	DS	Apacer	AM5D5808 DEWSBG	-	-	•	•
Apacer	78.A1GC6.9L1	2GB	DS	Apacer	AM5D5808 FEQSBG	9	-	•	•
Apacer	78.B1GDE.9L10C	4GB	DS	Apacer	AM5D5908 CEHSBG	-	-	•	•
CORSAIR	CM3X1024-1333C9	1GB	SS	-	-	9-9-9-24	1.60V	•	•
CORSAIR	TR3X3G1333C9 G	3GB (3 x 1GB)	SS	-	-	9-9-9-24	1.50V	•	•
CORSAIR	TR3X6G1333C9 G	6GB (3x 2GB)	SS	-	-	9-9-9-24	1.50V	•	•
CORSAIR	CMD24GX3M6 A1333C9(XMP)	24GB (6x4GB)	DS	-	-	9-9-9-24	1.60V	•	•
CORSAIR	TW3X4G1333 C9D G	4GB (2 x 2GB)	DS	-	-	9-9-9-24	1.50V	•	•

(continued on the next page)

DDR3-1333 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip No.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMM
CORSAIR	CMD8GX3M4 A1333C7	8GB(4 x 2GB)	DS	-	-	7-7-7-20	1.60V	•	•
Crucial	CT12864B A1339.8FF	1GB	SS	Micron	9FF22D9KPT	9	-	•	•
Crucial	CT25664B A1339.16FF	2GB	DS	Micron	9KF27D9KPT	9	-	•	•
Crucial	BL25664BN13 37.16FF (XMP)	6GB(3 x 2GB)	DS	-	-	7-7-7-24	1.65V	•	•
ELPIDA	EBJ10UE8 EDF0-DJ-F	1GB	SS	ELPIDA	J1108EDSE-DJ-F	-	1.35V (low voltage)	•	•
ELPIDA	EBJ21UE8 EDF0-DJ-F	2GB	DS	ELPIDA	J1108EDSE-DJ-F	-	1.35V (low voltage)	•	•
G.SKILL	F3-10600CL8 D-2GBHK(XMP)	1GB	SS	G.SKILL	-	-	-	•	•
G.SKILL	F3-10600CL9 D-2GBNQ	2GB (2 x 1GB)	SS	-	-	9-9-9-24	1.5V	•	•
G.SKILL	F3-10666CL7 T-3GBPK(XMP)	3GB (3 x 1GB)	SS	-	-	7-7-7-18	1.5~1.6V	•	•
G.SKILL	F3-10666CL8 D-4GBECO(XMP)	4GB (2 x 2GB)	DS	-	-	8-8-8-8-24	XMP 1.35V	•	•
G.SKILL	F3-10666CL7 T-6GBPK(XMP)	6GB (3 x 2GB)	DS	-	-	7-7-7-18	1.5~1.6V	•	•
G.SKILL	F3-10666CL7 D-8GBRH(XMP)	8GB (2 x 4GB)	DS	-	-	7-7-7-21	1.5V	•	•
GEIL	GET316GB 1333C9QC	16GB (4x 4GB)	DS	-	-	9-9-9-24	1.5V	•	•
GEIL	GV32GB 1333C9DC	2GB (2 x 1GB)	DS	-	-	9-9-9-24	1.5V	•	•
GEIL	GG34GB 1333C9DC	4GB (2 x 2GB)	DS	GEIL	GL1L128M 88BA12N	9-9-9-24	1.3V (low voltage)	•	•
GEIL	GV34GB 1333C9DC	4GB (2 x 2GB)	DS	-	-	9-9-9-24	1.5V	•	•
GEIL	GVP34GB 1333C7DC	4GB (2 x 2GB)	DS	-	-	7-7-7-24	1.5V	•	•
Hynix	HMT112U6 TFR8A-H9	1GB	SS	Hynix	H5TC1G83 TFRH9A	-	1.35V (low voltage)	•	•
Hynix	HMT325U6 BFR8C-H9	2GB	SS	Hynix	H5TQ2G83 BFRH9C	-	-	•	•
Hynix	HMT125U6 TFR8A-H9	2GB	DS	Hynix	H5TC1G83 TFRH9A	-	1.35V (low voltage)	•	•
Hynix	HMT351U6 BFR8C-H9	4GB	DS	Hynix	H5TQ2G83 BFRH9C	-	-	•	•

(continued on the next page)

DDR3-1333 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip No.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMM
Kingmax	FLFD45F-B8 KL9 NAES	1GB	SS	Kingmax	KKB8FNWB FGNX-27A	-	-	•	•
Kingmax	FLFE85F-C8 KF9 CAES	2GB	SS	Kingmax	KFC8FMFX F-DXX-15A	-	-	•	•
KINGMAX	FLFE85F-C8 KL9 NAES	2GB	SS	KINGMAX	KFC8FNLX F-DXX-15A	-	-	•	•
Kingmax	FLFE85F-C8 KM9 NAES	2GB	SS	Kingmax	KFC8FNMX F-BXX-15A	-	-	•	•
Kingmax	FLFE85F-B8 KL9 NEES	2GB	DS	Kingmax	KKB8FNWB FGNX-26A	-	-	•	•
KINGMAX	FLFF65F-C8 KL9 NEES	4GB	DS	KINGMAX	KFC8FNLX F-DXX-15A	-	-	•	•
Kingmax	FLFF65F-C8 KM9 NEES	4GB	DS	Kingmax	KFC8FNMX F-BXX-15A	-	-	•	•
KINGSTON	KVR1333 D3N9/1G(	1GB	SS	ELPIDA	J1108BD BG-DJ-F	9	1.5V	•	•
KINGSTON	KVR1333 D3N9/2G	2GB	SS	Hynix	H5TQ2G83 AFRH9C	9	-	•	•
KINGSTON	KVR1333 D3N9/2G	2GB	DS	ELPIDA	J1108BF BG-DJ-F	9	1.5V	•	•
KINGSTON	KVR1333 D3N9/2G	2GB	DS	KTC	D1288JPN DPLD9U	9	1.5V	•	•
KINGSTON	KVR1333 D3N9/2G	2GB	DS	ELPIDA	J1108BD SE-DJ-F	9	1.5V	•	•
KINGSTON	KHX1333C7D3 K2/4GX(XMP)	4GB (2x2GB)	DS	-	-	7	1.65V	•	•
KINGSTON	KHX1333C9D3 UK2/4GX(XMP)	4GB (2 x2GB)	DS	-	-	9	XMP 1.25V	•	•
KINGSTON	KVR1333 D3N9/4G	4GB	DS	ELPIDA	J2108BC SE-DJ-F	9	1.5V	•	•
KINGSTON	KVR1333 D3N9/4G	4GB	DS	Hynix	H5TQ2G 83AFR	-	-	•	•
Micron	MT4JTF12864 AZ-1G4D1	1GB	SS	Micron	OJD12D9LGQ	-	-	•	•
Micron	MT8JTF12864 AZ-1G4F1	1GB	SS	Micron	9FF22D9KPT	9	-	•	•
Micron	MT8JTF25664 AZ-1G4D1	2GB	SS	Micron	OJD12D9LGK	-	-	•	•
Micron	MT16JTF25664 AZ-1G4F1	2GB	DS	Micron	9KF27D9KPT	9	-	•	•
Micron	MT16JTF51264 AZ-1G4D1	4GB	DS	Micron	OLD22D9LGK	-	-	•	•
OCZ	OCZ3F13334GK	4GB (2x2GB)	DS	-	-	9-9-9-20	1.7V	•	•
OCZ	OCZ3P13334GK	4GB (2x2GB)	DS	-	-	7-7-7-20	1.8V	•	•
OCZ	OCZ3P1333 LV4GK	4GB (2x2GB)	DS	-	-	7-7-7-20	1.65V	•	•
OCZ	OCZ3X1333 4GK(XMP)	4GB (2x2GB)	DS	-	-	7-7-7-20	1.75V	•	•

(continued on the next page)

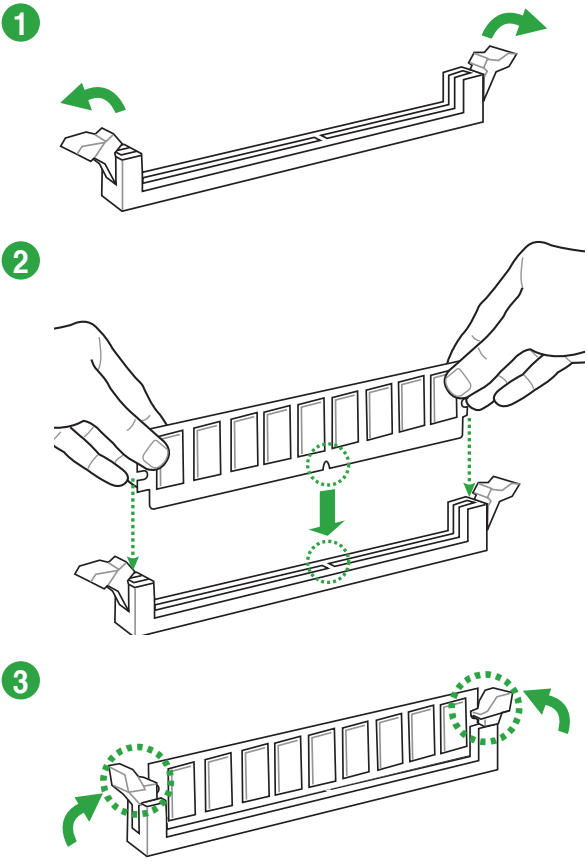
DDR3-1333 MHz capability

Vendors	Part No.	SS/DS	Chip Brand	Chip No.	Timing	Voltage	DIMM socket support (Optional)	
							1 DIMM	2 DIMM
OCZ	OCZ3P1333 LV6GK	DS	-	-	7-7-7-20	1.65V	•	•
PSC	AL7F8G73F-DJ2	SS	PSC	A3P1GF3FGF	-	-	•	•
PSC	AL8F8G73F-DJ2	DS	PSC	A3P1GF3FGF	-	-	•	•
SAMSUNG	M378B2873 FHS-CH9	SS	SAMSUNG	K4B1G0846F	-	-	•	•
SAMSUNG	M378B5773D H0-CH9	SS	SAMSUNG	K4B2G0846D	-	-	•	•
SAMSUNG	M378B5673F H0-CH9	DS	SAMSUNG	K4B1G0846F	-	-	•	•
SAMSUNG	M378B5273C H0-CH9	DS	SAMSUNG	K4B2G0846C	-	-	•	•
Super Talent	W1333UA1GH	SS	Hynix	H5TQ1G83TFR	9	-	•	•
Super Talent	W1333X2G8(XMP)	SS	-	-	8	-	•	•
Super Talent	W1333UB2GS	DS	SAMSUNG	K4B1G0846F	9	-	•	•
Super Talent	W1333UB4GS	DS	SAMSUNG	K4B2G0846C	-	-	•	•
Super Talent	W1333UX6GM	DS	Micron	0BF27D9KPT	9-9-9-24	1.5V	•	•
Transcend	JM1333KLN-2G	SS	Micron	0YD77D9LGK	-	-	•	•
Transcend	JM1333KLU-2G	DS	Transcend	TK243PDF3	-	-	•	•
Transcend	TS256MLK64V3U	DS	Micron	9GF27D9KPT	-	-	•	•

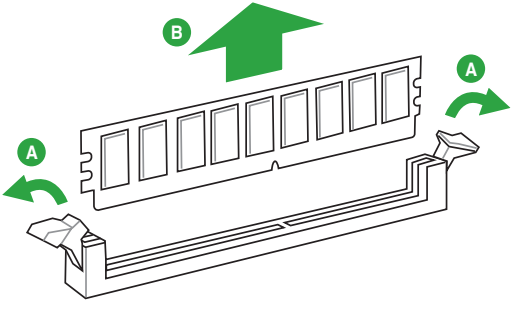
DDR3-1066 MHz capability

Vendors	Part No.	Size	SS/DS	Chip Brand	Chip No.	Timing	Voltage	DIMM socket support (Optional)	
								1 DIMM	2 DIMM
Crucial	CT12864B A1067.8FF	1GB	SS	Micron	9GF22D9KPT	7	-	•	•
Crucial	CT25664B A1067.16FF	2GB	DS	Micron	9HF22D9KPT	7	-	•	•
ELPIDA	EBJ10UE8 EDF0-AE-F	1GB	SS	ELPIDA	J1108EDSE-DJ-F	-	1.35V (low voltage)	•	•
ELPIDA	EBJ21UE8 EDF0-AE-F	2GB	DS	ELPIDA	J1108EDSE-DJ-F	-	1.35V (low voltage)	•	•
KINGSTON	KVR1066 D3N7/1G	1GB	SS	ELPIDA	J1108BFSE-DJ-F	7	1.5V	•	•
KINGSTON	KVR1066 D3N7/2G	2GB	DS	ELPIDA	J1108BDSE-DJ-F	7	1.5V	•	•
KINGSTON	KVR1066 D3N7/4G	4GB	DS	Hynix	H5TQ2 G83AFR	7	1.5V	•	•
Micron	MT8JTF12864 AZ-1G1F1	1GB	SS	Micron	9GF22D9KPT	7	-	•	•
Micron	MT16JTF2566 4AZ-1G1F1	2GB	DS	Micron	9HF22D9KPT	7	-	•	•

1.5.3 Installing a DIMM



To remove a DIMM



1.6 Expansion slots

In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

Unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

1.6.1 Installing an expansion card

To install an expansion card:

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

1.6.2 Configuring an expansion card

After installing the expansion card, configure it by adjusting the software settings.

1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 2 for information on BIOS setup.
2. Assign an IRQ to the card.
3. Install the software drivers for the expansion card.

When using PCI cards on shared slots, ensure that the drivers support “Share IRQ” or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable.

1.6.3 PCI slot

The PCI slot supports cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications.

1.6.4 PCI Express x1 slot

This motherboard supports PCI Express 2.0 x1 network cards, SCSI cards, and other cards that comply with the PCI Express specifications.

1.6.5 PCI Express x16 slots

This motherboard has two PCI Express 2.0 x16 slot that supports PCI Express 2.0 x16 graphic cards complying with the PCI Express specifications.

VGA configuration	PCI Express operating mode	
	PCIe x16_1	PCIe x16_2
Single VGA/ PCIe card	x16 (Recommended for single VGA card)	N/A
Dual VGA/PCIe card	x16	x4

- In single VGA card mode, use the PCIe 2.0 x16_1 slot (blue) for a PCI Express x16 graphics card to get better performance.
- We recommend that you provide sufficient power when running CrossFireX™ mode.
- Connect a chassis fan to the motherboard connector labeled CHA_FAN when using multiple graphics cards for better thermal environment.

1.6.6 Interrupt assignments

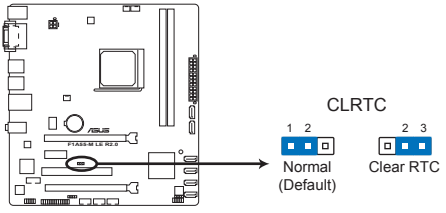
Standard interrupt assignments

	A	B	C	D	E	F	G	H
OnChip IGP Device	–	–	shared	–	–	–	–	–
OnChip SATA IDE	–	–	–	shared	–	–	–	–
PCIE x16_1 slot	–	–	shared	–	–	–	–	–
PCIE x16_2 slot	–	–	–	shared	–	–	–	–
PCIE x1_1 slot	shared	–	–	–	–	–	–	–
RTL811E	–	shared	–	–	–	–	–	–
PCI slot	–	–	–	–	shared	–	–	–

1.7 Jumpers

Clear RTC RAM (3-pin CLRTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.



F1A55-M LE R2.0 Clear RTC RAM

To erase the RTC RAM:

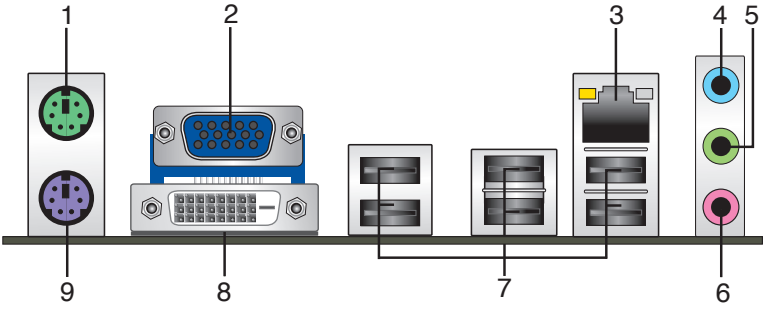
1. Turn OFF the computer and unplug the power cord.
2. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5-10 seconds, then move the cap back to pins 1-2.
3. Plug the power cord and turn ON the computer.
4. Hold down the <**Del**> key during the boot process and enter BIOS setup to re-enter data.

Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

- If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After clearing the CMOS, reinstall the battery.
- You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the CPU Parameter Recall (C.P.R.) feature. Shut down and reboot the system, then the BIOS automatically resets parameter settings to default values.

1.8 Connectors

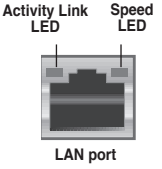
1.8.1 Rear panel connectors



1. **PS/2 Mouse port (green).** This port is for a PS/2 mouse.
2. **Video Graphics Adapter (VGA) port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.
3. **LAN (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

LAN port LED indications

Activity/Link LED		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	10Mbps connection
ORANGE	Linked	ORANGE	100Mbps connection
BLINKING	Data activity	GREEN	1Gbps connection



4. **Line In port (light blue).** This port connects to the tape, CD, DVD player, or other audio sources.
5. **Line Out port (lime).** This port connects to a headphone or a speaker. In the 4, 6, and 8-channel configurations, the function of this port becomes Front Speaker Out.
6. **Microphone port (pink).** This port connects to a microphone.

Refer to the audio configuration table for the function of the audio ports in 2, 4, 6, or 8-channel configuration.

Audio 2, 4, 6, or 8-channel configuration

Port	2-channel	4-channel	6-channel	8-channel
Light Blue (Rear panel)	Line In	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out
Lime (Rear panel)	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink (Rear panel)	Mic In	Mic In	Bass/Center	Bass/Center
Lime (Front panel)	–	–	–	Side Speaker Out

7. **USB 2.0 ports 1~6.** These two 4-pin Universal Serial Bus (USB) ports are for USB 2.0/1.1 devices.

8. **DVI-D port.** This port is for any DVI-D compatible device. DVI-D can't be converted to output RGB Signal to CRT and isn't compatible with DVI-I.

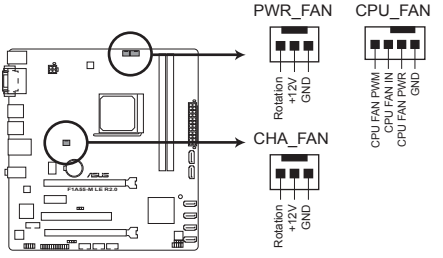
9. **PS/2 Keyboard port (green).** This port is for a PS/2 keyboard.

1.8.2 Internal connectors

1. Power, CPU and chassis fan connectors

(3-pin PWR FAN, 4-pin CPU_FAN, and 3-pin CHA_FAN)

Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.



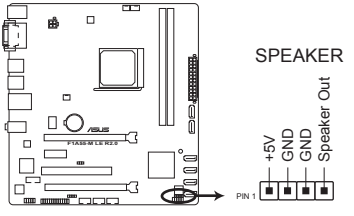
F1A55-M LE R2.0 fan connectors

DO NOT forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! DO NOT place jumper caps on the fan connectors.

- The CPU_FAN connector supports a CPU fan of maximum 2A (24 W) fan power.
- Only the CPU_FAN and CHA_FAN connectors support the ASUS Fan Xpert feature.
- If you install two VGA cards, we recommend that you plug the rear chassis fan cable to the motherboard connector labeled CHA_FAN for better thermal environment.

2. Speaker connector (4-pin SPEAKER)

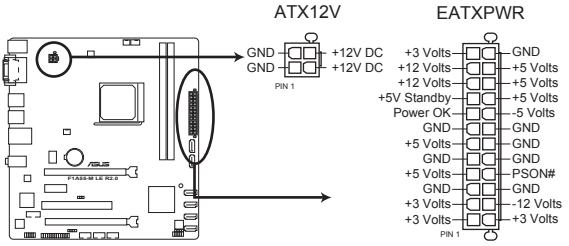
This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.



F1A55-M LE R2.0 Speaker connector

3. ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)

These connectors are for an ATX power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

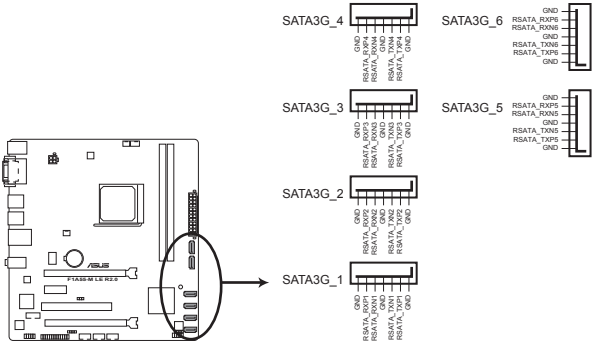


F1A55-M LE R2.0 ATX power connectors

- We recommend that you use an ATX 12V Specification 2.0--compliant power supply unit (PSU) with a minimum of 300W power rating. This PSU type has 24-pin and 4-pin power plugs.
- If you intend to use a PSU with 20-pin and 4-pin power plugs, ensure that the 20-pin power plug can provide at least 15 A on +12 V and that the PSU has a minimum power rating of 300W. The system may become unstable or may not boot up if the power is inadequate.
- DO NOT forget to connect the 4-pin ATX +12V power plug. Otherwise, the system will not boot up.
- We recommend that you use a PSU with higher power output when configuring a system with more power-consuming devices or when you intend to install additional devices. The system may become unstable or may not boot up if the power is inadequate.
- If you are uncertain about the minimum power supply requirement for your system, refer to the Recommended Power Supply Wattage Calculator at http://support.asus.com/PowerSupplyCalculator/PSCalculator.aspx?SLanguage=en-us for details.

4. Serial ATA 3.0 Gb/s connectors (7-pin SATA3G 1~6)

These connectors are for the Serial ATA 3.0 Gb/s signal cables for Serial ATA hard disk drives and optical disc drives. If you installed Serial ATA hard disk drives, you can create a RAID 0, RAID 1, RAID 10, or JBOD configuration through the onboard controller.

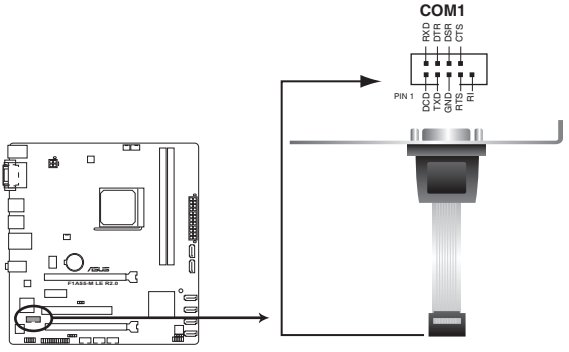


F1A55-M LE R2.0 SATA 3.0Gb/s connectors

- These connectors are set to IDE mode by default. In IDE mode, you can connect Serial ATA boot/data hard disk drives to these connectors. If you intend to create a Serial ATA RAID set using these connectors, set the type of the SATA connectors in the BIOS to [RAID]. See section **2.5.2 SATA Configuration** for details.
- You must install Windows® XP Service Pack 3 or later version before using Serial ATA hard disk drives. The Serial ATA RAID feature is available only if you are using Windows® XP SP3 or later version.
- When using hot-plug and NCQ, set the type of the SATA connectors in the BIOS to [AHCI]. See section **2.5.2 SATA Configuration** for details.

5. Serial port connector (10-1 pin COM1)

This connector is for a serial (COM) port. Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis.

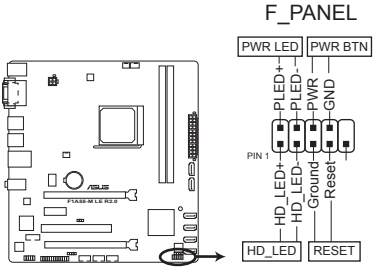


F1A55-M LE R2.0 Serial port (COM1) connector

The COM module is purchased separately.

6. System panel connector (10-1 pin F_PANEL)

This connector supports several chassis-mounted functions.



F1A55-M LE R2.0 System panel connector

- **System power LED (2-pin PLED)**

  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard disk drive activity LED (2-pin IDE_LED)**

  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

- **ATX power button/soft-off button (2-pin PWRSW)**

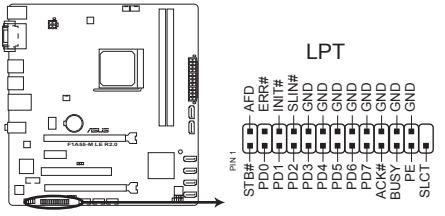
  This 2-pin connector is for the system power button.

- **Reset button (2-pin RESET)**

  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

7. LPT connector (26-1 pin LPT)

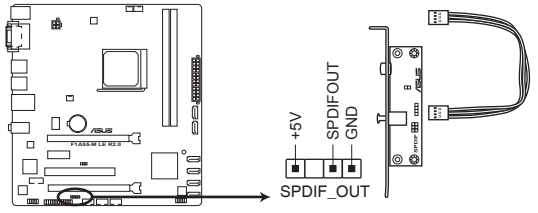
The LPT (Line Printing Terminal) connector supports devices such as a printer. LPT standardizes as IEEE 1284, which is the parallel port interface on IBM PC-compatible computers.



F1A55-M LE R2.0 Parallel Port Connector

8. Digital audio connector (4-1 pin SPDIF_OUT)

This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port.



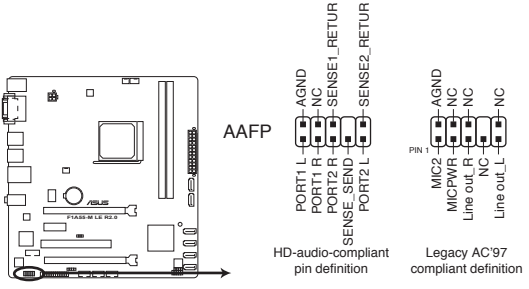
F1A55-M LE R2.0 Digital audio connector

Ensure that the audio device of Sound playback is Realtek High Definition Audio (the name may be different based on the OS). Go to **Start** > **Control Panel** > **Sounds and Audio Devices** > **Sound Playback** to configure the setting.

The S/PDIF module is purchased separately.

9. Front panel audio connector (10-1 pin AAFP)

This connector is for a chassis-mounted front panel audio I/O module that supports either High Definition Audio or AC`97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.

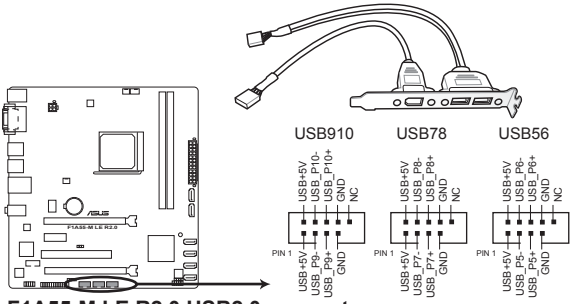


F1A55-M LE R2.0 Front panel audio connector

- We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard high-definition audio capability.
- If you want to connect a high definition front panel audio module to this connector, set the Front Panel Type item in the BIOS to [HD]. See section **2.5.5 Onboard Devices Configuration** for details.
- The front panel audio I/O module is purchased separately.

10. USB 2.0 connectors (10-1 pin USB56, USB78, USB910)

These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480Mbps connection speed.



F1A55-M LE R2.0 USB2.0 connectors

Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!

The USB 2.0 module is purchased separately.

1.9 Software support

1.9.1 Installing an operating system

This motherboard supports Windows® XP / Vista / 7 Operating Systems (OS). Always install the latest OS version and corresponding updates to maximize the features of your hardware.

- Motherboard settings and hardware options vary. Refer to your OS documentation for detailed information.
- Ensure that you install Windows® XP Service Pack 3 or later versions / Windows® Vista Service Pack 1 or later versions before installing the drivers for better compatibility and system stability.

1.9.2 Support DVD information

The Support DVD that comes with the motherboard package contains the drivers, software applications, and utilities that you can install to avail all motherboard features.

The contents of the Support DVD are subject to change at any time without notice. Visit the ASUS website at www.asus.com for updates.

To run the Support DVD

Place the Support DVD into the optical drive. If Autorun is enabled in your computer, the DVD automatically displays the Specials screen which contains the unique features of ASUS motherboard. Click Drivers, Utilities, Make Disk, Manual, and Contact tabs to display their respective menus.

The following screen is for reference only.

If Autorun is NOT enabled in your computer, browse the contents of the Support DVD to locate the file ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.EXE to run the DVD.

BIOS setup

2

2.1 Managing and updating your BIOS

Save a copy of the original motherboard BIOS file to a USB flash disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update utility.

2.1.1 ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® environment.

- ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).
- This utility is available in the support DVD that comes with the motherboard package.

Installing ASUS Update

To install ASUS Update:

1. Place the support DVD in the optical drive. The Drivers menu appears.
2. Click the **Utilities** tab, then click **AI Suite II**.
3. Follow the onscreen instructions to complete the installation.

Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS

To update the BIOS:

1. From the Windows® desktop, click **Start** > **Programs** > **ASUS** > **AI Suite II** > **AI Suite II X.XX.XX** to launch the AI Suite II utility. The AI Suite II Quick Bar appears.
2. Click **Update** button from the Quick Bar, and then click **ASUS Update** from the popup menu. The **ASUS Update** main screen appears. From the list, select either of the following methods:

Updating from the Internet

a. Select **Update BIOS from the Internet**, then click **Next**.

b. Select the ASUS FTP site nearest you to avoid network traffic, then click **Next**.

c. From the FTP site, select the BIOS version that you wish to download then click **Next**.

The ASUS Update utility is capable of updating itself through the Internet. Always update the utility to avail all its features.

Updating from a BIOS file

a. Select **Update BIOS from file**, then click **Next**.

b. Locate the BIOS file from the **Open** window, then click **Open**.

3. Follow the onscreen instructions to complete the updating process.

2.1.2 ASUS EZ Flash 2

The ASUS EZ Flash 2 feature allows you to update the BIOS without using an OS-based utility.

Before you start using this utility, download the latest BIOS file from the ASUS website at www.asus.com.

To update the BIOS using EZ Flash 2:

1. Insert the USB flash disk that contains the latest BIOS file to the USB port.
2. Enter the **Advanced Mode** of the BIOS setup program. Go to the **Tool** menu to select **ASUS EZ Flash Utility** and press <Enter> to enable it.
3. Press <Tab> to switch to the **Drive** field.
4. Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, and then press <Enter>.
5. Press <Tab> to switch to the **Folder Info** field.
6. Press the Up/Down arrow keys to find the BIOS file, and then press <Enter> to perform the BIOS update process. Reboot the system when the update process is done.

- This function supports USB flash disks with FAT 32/16 format and single partition only.
- DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

2.1.3 ASUS CrashFree BIOS 3 utility

The ASUS CrashFree BIOS 3 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can restore a corrupted BIOS file using the motherboard support DVD or a USB flash drive that contains the updated BIOS file.

- Before using this utility, rename the BIOS file in the removable device into **F1A55ML2.CAP**.
- The BIOS file in the support DVD may not be the latest version. Download the latest BIOS file from the ASUS website at www.asus.com.

Recovering the BIOS

To recover the BIOS:

1. Turn on the system.
2. Insert the support DVD to the optical drive or the USB flash drive that contains the BIOS file to the USB port.
3. The utility automatically checks the devices for the BIOS file. When found, the utility reads the BIOS file and enters ASUS EZ Flash 2 utility automatically.
4. The system requires you to enter BIOS Setup to recover BIOS setting. To ensure system compatibility and stability, we recommend that you press <F5> to load default BIOS values.

DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

2.1.4 ASUS BIOS Updater

The ASUS BIOS Updater allows you to update BIOS in DOS environment. This utility also allows you to copy the current BIOS file that you can use as a backup when the BIOS fails or gets corrupted during the updating process.

The succeeding utility screens are for reference only. The actual utility screen displays may not be same as shown.

Before updating BIOS

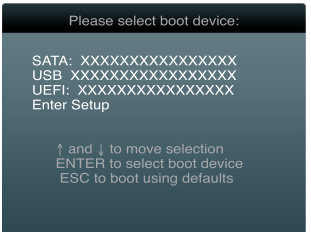
1. Prepare the motherboard support DVD and a USB flash drive in FAT32/16 format and single partition.
2. Download the latest BIOS file and BIOS Updater from the ASUS website at **http://support.asus.com** and save them on the USB flash drive.

NTFS is not supported under DOS environment. Do not save the BIOS file and BIOS Updater to a hard disk drive or USB flash drive in NTFS format.

3. Turn off the computer and disconnect all SATA hard disk drives (optional).

Booting the system in DOS environment

1. Insert the USB flash drive with the latest BIOS file and BIOS Updater to the USB port.
2. Boot your computer. When the ASUS Logo appears, press <F8> to show the **BIOS Boot Device Select Menu**. Insert the support DVD into the optical drive and select the optical drive as the boot device.



3. When the Make Disk menu appears, select the FreeDOS command prompt item by pressing the item number.
4. At the FreeDOS prompt, type d: and press <Enter> to switch the disk from Drive C (optical drive) to Drive D (USB flash drive).

```
Welcome to FreeDOS (http://www.freedos.org)!
C:\>d:
D:\>
```

Backing up the current BIOS

To back up the current BIOS file using the BIOS Updater:

Ensure that the USB flash drive is not write-protected and has at least 1024KB free space to save the file.

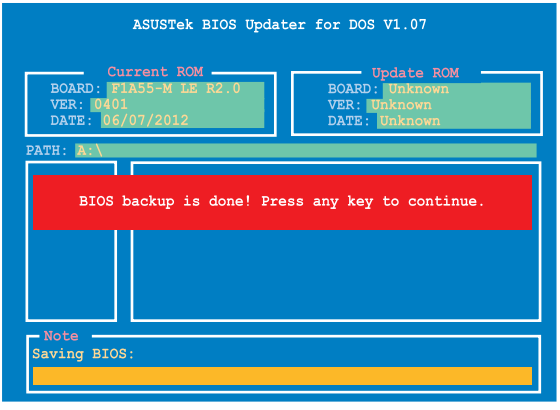
1. At the FreeDOS prompt, type **bupdater /o[filename]** and press <Enter>.

```
D:\>bupdater /oOLDBIOS1.rom
```

Filename Extension

The [filename] is any user-assigned filename with no more than eight alphanumeric characters for the filename and three alphanumeric characters for the extension.

2. The BIOS Updater backup screen appears indicating the BIOS backup process. When BIOS backup is done, press any key to return to the DOS prompt.



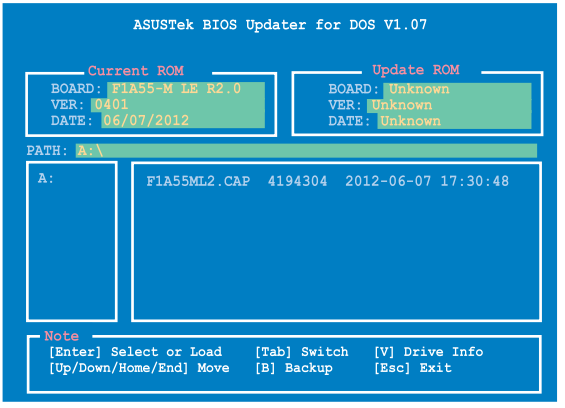
Updating the BIOS file

To update the BIOS file using BIOS Updater:

1. At the FreeDOS prompt, type **bupdater /pc /g** and press <Enter>.

```
D:\>bupdater /pc /g
```

2. The BIOS Updater screen appears as below.



3. Press <Tab> to switch between screen fields and use the <Up/Down/Home/End> keys to select the BIOS file and press <Enter>. BIOS Updater checks the selected BIOS file and prompts you to confirm BIOS update.

4. Select Yes and press <Enter>. When BIOS update is done, press <ESC> to exit BIOS Updater. Restart your computer.

DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

- For BIOS Updater version 1.04 or later, the utility automatically exits to the DOS prompt after updating BIOS.
- Ensure to load the BIOS default settings to ensure system compatibility and stability. Select the Load Optimized Defaults item under the Exit menu. Refer to section **2.9 Exit menu** for details.
- Ensure to connect all SATA hard disk drives after updating the BIOS file if you have disconnected them.

2.2 BIOS setup program

Use the BIOS Setup program to update the BIOS or configure its parameters. The BIOS screens include navigation keys and brief online help to guide you in using the BIOS Setup program.

Entering BIOS Setup at startup

To enter BIOS Setup at startup:

- Press <Delete> during the Power-On Self Test (POST). If you do not press <Delete>, POST continues with its routines.

Entering BIOS Setup after POST

To enter BIOS Setup after POST:

- Press <Ctrl>+<Alt>+<Del> simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then back on. Do this option only if you failed to enter BIOS Setup using the first two options.

Using the power button, reset button, or the <Ctrl>+<Alt>+<Del> keys to force reset from a running operating system can cause damage to your data or system. We recommend to always shut down the system properly from the operating system.

- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
- Visit the ASUS website at **www.asus.com** to download the latest BIOS file for this motherboard.
- Ensure that a USB mouse is connected to your motherboard if you want to use the mouse to control the BIOS setup program.
- If the system becomes unstable after changing any BIOS setting, load the default settings to ensure system compatibility and stability. Select the **Load Optimized Defaults** item under the Exit menu. See section **2.9 Exit Menu** for details.
- If the system fails to boot after changing any BIOS setting, try to clear the CMOS and reset the motherboard to the default value. See section **1.7 Jumpers** for information on how to erase the RTC RAM.

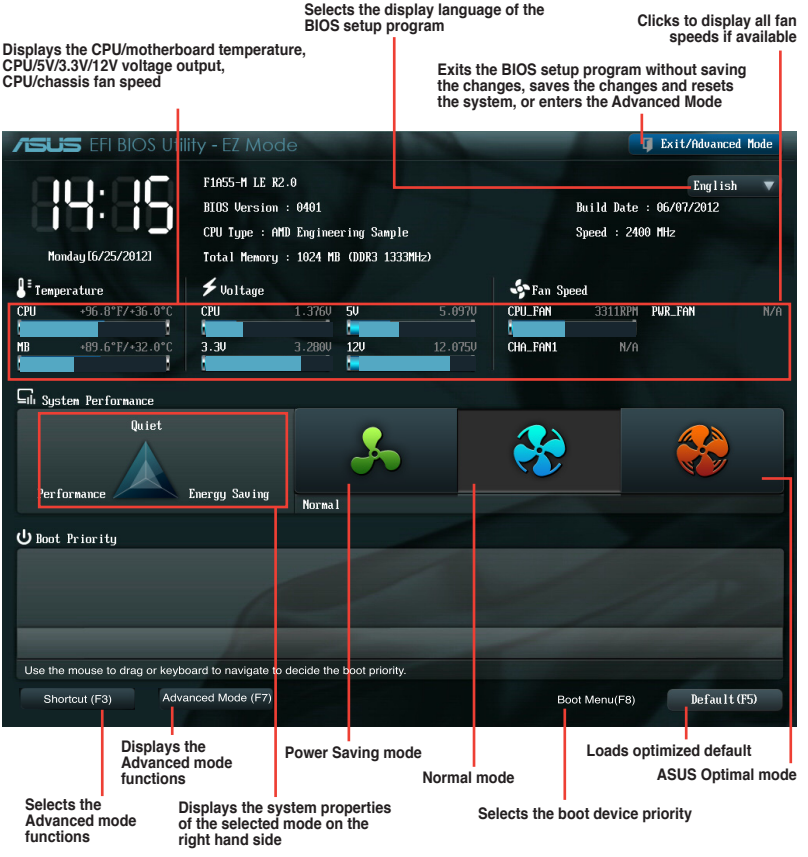
BIOS menu screen

The BIOS setup program can be used under two modes: **EZ Mode** and **Advanced Mode**. You can change modes from the **Exit** menu or from the Exit/Advanced Mode button in the EZ Mode/Advanced Mode screen.

EZ Mode

By default, the EZ Mode screen appears when you enter the BIOS setup program. The EZ Mode provides you an overview of the basic system information, and allows you to select the display language, system performance mode and boot device priority. To access the Advanced Mode, click Exit/Advanced Mode, then select Advanced Mode.

The default screen for entering the BIOS setup program can be changed. Refer to the **Setup Mode** item in section **2.7 Boot menu** for details.

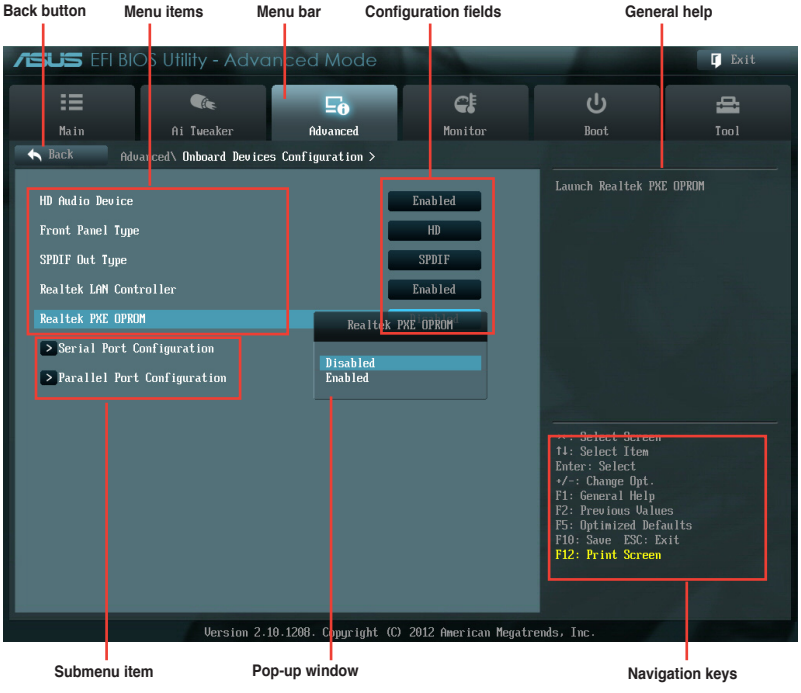

Selects the display language of the BIOS setup program
Clicks to display all fan speeds if available
Displays the CPU/motherboard temperature, CPU/5V/3.3V/12V voltage output, CPU/chassis fan speed
Exits the BIOS setup program without saving the changes, saves the changes and resets the system, or enters the Advanced Mode
EFI BIOS Utility - EZ Mode
Exit/Advanced Mode
F1A55-M LE R2.0
BIOS Version : 0401
CPU Type : AMD Engineering Sample
Total Memory : 1024 MB (DDR3 1333MHz)
English
Build Date : 06/07/2012
Speed : 2400 MHz
Monday[6/25/2012]
Temperature
Voltage
Fan Speed
System Performance
Quiet
Performance
Energy Saving
Normal
Boot Priority
Use the mouse to drag or keyboard to navigate to decide the boot priority.
Shortcut (F3)
Advanced Mode (F7)
Boot Menu(F8)
Default (F5)
Displays the Advanced mode functions
Power Saving mode
Normal mode
Loads optimized default
ASUS Optimal mode
Selects the Advanced mode functions
Displays the system properties of the selected mode on the right hand side
Selects the boot device priority

- The boot device options vary depending on the devices you installed to the system.
- The **Boot Menu(F8)** button is available only when the boot device is installed to the system.

Advanced Mode

The Advanced Mode provides advanced options for experienced end-users to configure the BIOS settings. The figure below shows an example of the **Advanced Mode**. Refer to the following sections for the detailed configurations.

To access the EZ Mode, click **Exit**, then select **ASUS EZ Mode**.



Menu bar

The menu bar on top of the screen has the following main items:

Main	For changing the basic system configuration
Ai Tweaker	For changing the overclocking settings
Advanced	For changing the advanced system settings
Monitor	For displaying the system temperature, power status, and changing the
Boot	For changing the system boot configuration
Tool	For configuring options for special functions
Exit	For selecting the exit options and loading default settings

Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting **Main** shows the Main menu items.

The other items (Ai Tweaker, Advanced, Monitor, Boot, Tool, and Exit) on the menu bar have their respective menu items.

Back button

This button appears when entering a submenu. Press <Esc> or use the USB mouse to click this button to return to the previous menu screen.

Submenu items

A greater than sign (>) before each item on any menu screen means that the item has a submenu. To display the submenu, select the item and press <Enter>.

Pop-up window

Select a menu item and press <Enter> to display a pop-up window with the configuration options for that item.

Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> / <Page Down> keys to display the other items on the screen.

Navigation keys

At the bottom right corner of the menu screen are the navigation keys for the BIOS setup program. Use the navigation keys to select items in the menu and change the settings.

General help

At the top right corner of the menu screen is a brief description of the selected item.

Configuration fields

These fields show the values for the menu items. If an item is user-configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable.

A configurable field is highlighted when selected. To change the value of a field, select it and press <Enter> to display a list of options.

2.3 Main menu

The Main menu screen appears when you enter the Advanced Mode of the BIOS Setup program. The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, language, and security settings.

2.3.1 System Language [English]

Allows you to choose the BIOS language version from the options. Configuration options: [English] [Français] [Deutsch] [简体中文] [繁體中文] [日本語] [Español] [Русский]

2.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

2.3.3 System Time [xx:xx:xx]

Allows you to set the system time.

2.3.4 Security

The Security menu items allow you to change the system security settings.

- If you have forgotten your BIOS password, erase the CMOS Real Time Clock (RTC) RAM to clear the BIOS password. See section **1.7 Jumpers** for information on how to erase the RTC RAM.
- The **Administrator** or **User Password** items on top of the screen show the default **Not Installed**. After you set a password, these items show **Installed**.

Administrator Password

If you have set an administrator password, we recommend that you enter the administrator password for accessing the system. Otherwise, you might be able to see or change only selected fields in the BIOS setup program.

To set an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

To change an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **Administrator Password** item on top of the screen shows **Not Installed**.

User Password

If you have set a user password, you must enter the user password for accessing the system. The **User Password** item on top of the screen shows the default **Not Installed**. After you set a password, this item shows **Installed**.

To set a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

To change a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

To clear the user password, follow the same steps as in changing a user password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **User Password** item on top of the screen shows **Not Installed**.

2.4 Ai Tweaker menu

The Ai Tweaker menu items allow you to configure overclocking-related items.

Be cautious when changing the settings of the Ai Tweaker menu items. Incorrect field values can cause the system to malfunction.

The configuration options for this section vary depending on the CPU and DIMM model you installed on the motherboard.

Scroll down to display more items:

Target CPU Speed : xxxxMHz

Displays the current CPU speed.

Target DRAM Speed : xxxxMHz

Displays the current DRAM speed.

2.4.1 Ai Overclock Tuner [Auto]

Allows you to select the CPU overclocking options to achieve the desired CPU internal frequency. Select any of these preset overclocking configuration options:

[Auto] Loads the optimal settings for the system.

[Manual] Allows you to individually set overclocking parameters.

[D.O.C.P.] Allows you to select a DRAM O.C. profile, and the related parameters will be adjusted automatically.

APU Frequency [XXX]

This item appears only when you set the **Ai Overclock Tuner** item to [Manual]. Use the <+> and <-> keys to adjust the value. You can also key in the desired value using the numeric keypad. The values range from 90.0MHz to 300.0MHz.

DRAM O.C. Profile [DDR3-1600MHz 9-9-9-24 1.65V]

This item appears only when you set the **Ai Overclock Tuner** item to [D.O.C.P.]. and allows you to select a DRAM O.C. profile, which applies different settings to DRAM frequency, DRAM timing and DRAM voltage. Configuration options: [DDR3-1600MHz 9-9-9-24 1.65V] [DDR3-1800MHz 9-9-9-24 1.65V] [DDR3-1866MHz 9-9-9-24 1.65V] [DDR3-2000MHz 9-9-9-24 1.65V] [DDR3-2133MHz 9-9-9-24 1.65V] [DDR3-2200MHz 9-9-9-24 1.65V] [DDR3-2400MHz 9-9-9-24 1.65V]

2.4.2 Memory Frequency [Auto]

Allows you to set the memory operating frequency. Configuration options: [Auto] [DDR3-800MHz] [DDR3-1066MHz] [DDR3-1333MHz] [DDR3-1600MHz] [DDR3-1866MHz]

Selecting a very high memory frequency may cause the system to become unstable! If this happens, revert to the default setting.

2.4.3 APU Multiplier [Auto]

Allows you to set the multiplier between the CPU Core Clock and the FSB Frequency. Use the <+> and <-> keys to adjust the ratio. The valid value ranges vary according to your CPU model.

2.4.4 EPU Power Saving Mode [Disabled]

Allows you to enable or disable the EPU power saving function.
Configuration options: [Disabled] [Enabled]

EPU Setting [Auto]

This item appears only when The EPU Power Saving Mode is set to [Enabled] and allows you to set power saving mode. Configuration options: [Auto] [Light Power Saving Mode] [Medium Power Saving Mode] [Max Power Saving Mode]

2.4.5 OC Tuner

OC Tuner automatically overclocks the frequency and voltage of CPU and DRAM for enhancing the system performance. Press <Enter> and select **OK** to start automatic overclocking.

2.4.6 DRAM Timing Control

The sub-items in this menu allow you to set the DRAM timing control features. Use the <+> and <-> keys to adjust the value. To restore the default setting, type [auto] using the keyboard and press <Enter>.

Changing the values in this menu may cause the system to become unstable! If this happens, revert to the default settings.

2.4.7 Hybrid DIGI+VRM

Load-line Calibration [Auto]

Load-line is defined by AMD VRM specifications, and affects CPU voltage. The CPU working voltage will decrease proportionally to CPU loading. Higher load-line calibration would get higher voltage and better overclocking performance, but increases the CPU and VRM thermal conditions. This item allows you to adjust the voltage range from the following percentages to boost the system performance: 0% (Regular), 25% (Medium), 50% (High), 75% (Ultra High) and 100% (Extreme). Configuration options: [Auto] [Regular] [Medium] [High] [Ultra High] [Extreme]

The actual performance boost may vary depending on your CPU specification.

CPU/NB Load-Line Calibration [Auto]

Load-line is defined by AMD VRM spec and affects CPU voltage. The CPU working voltage will decrease proportionally to CPU loading. Higher value gets a higher voltage and better overclocking performance, but increases the CPU and VRM thermal. This item allows you to set this function for better system performance. Configuration options: [Auto] [Regular] [High] [Extreme]

The actual performance boost may vary depending on your CPU specification.

VRM Fixed Frequency Mode [xxx]

Frequency switching affects the VRM transient response and the thermal component. Higher frequency gets quicker transient response. Use the <+> and <-> keys to adjust the value. The values range from 250k Hz to 400k Hz with a 50k Hz interval.

CPU Power Phase Control [Standard]

Allows you to control the power phase based on the CPU's demands. Configuration options: [Standard] [Optimized] [Extreme] [Manual Adjustment]

DO NOT remove the thermal module when switching to Extreme and Manual Adjustment. The thermal conditions should be monitored.

2.4.8 CPU Voltage [Offset Mode]

[Offset Mode] To offset the voltage by a positive or negative value.

CPU Offset Mode Sign [+]

[+] To offset the voltage by a positive value.

[–] To offset the voltage by a negative value.

CPU Offset Voltage [Auto]

Allows you to set the CPU Offset voltage. The values range from 0.000V to 0.500V with a 0.003125V interval.

Refer to the CPU documentation before setting the CPU voltage. Setting a high voltage may damage the CPU permanently, and setting a low voltage may make the system unstable.

2.4.9 VDDNB Offset Mode Sign [+]

[+] To offset the voltage by a positive value.

[–] To offset the voltage by a negative value.

VDDNB Offset Voltage [Auto]

Allows you to set the VDDNB Offset voltage. The values range from 0.000V to 0.500V with a 0.003125V interval.

2.4.10 DRAM Voltage [Auto]

Allows you to set the DRAM voltage. The values range from 1.35V to 2.30V with a 0.01V interval.

According to Intel CPU specification, DIMMs with voltage requirement over 1.65V may damage the CPU permanently. We recommend you install the DIMMs with the voltage requirement below 1.65V.

2.4.11 SB 1.1V Voltage [Auto]

Allows you to set the Southbridge 1.1V voltage. The values range from 1.1V to 1.4V with a 0.01V interval.

2.4.12 1.1Vsb Voltage [Auto]

Allows you to set the 1.1Vsb voltage. The values range from 1.1000V to 1.2000V with a 0.1V interval.

2.4.13 APU1.2V Voltage [Auto]

Allows you to set the APU (Accelerated Processor Unit) 1.2V voltage. The values range from 1.2000V to 1.8000V with a 0.01V interval.

2.4.14 VDDA Voltage [Auto]

Allows you to set the VDDA voltage. The values range from 2.5000V to 2.8000V with a 0.1V interval.

- The values of the **CPU Offset Voltage**, **VDDNB Offset Voltage**, **DRAM Voltage**, **SB 1.1V Voltage**, **1.1Vsb Voltage**, **APU1.2V Voltage**, and **VDDA Voltage** items are labeled in different color, indicating the risk levels of high voltage settings.
- The system may need better cooling system to work stably under high voltage settings.

2.4.15 APU Spread Spectrum [Auto]

[Auto] Automatic configuration.

[Disabled] Enhances the PCIE overclocking ability.

[Enabled] Sets to [Enabled] for EMI control.

2.5 Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

Be cautious when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

2.5.1 CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects.

The items shown in submenu may be different due to the CPU you installed.

Limit CPUID Maximum [Disabled]

[Enabled] Allows legacy operating systems to boot even without support for CPUs with extended CPUID functions.

[Disabled] Disables this function.

C6 Mode [Auto]

Enables or disables C6 mode. Configuration options: [Auto] [Enabled] [Disabled]

CPB Mode [Auto]

Disables the CPB (Core Performance Boost) mode or set it to [Auto] for automatic configuration. Configuration options: [Disabled] [Auto]

AMD PowerNow function [Enabled]

Enables or disables the AMD PowerNow function. Configuration options: [Enabled] [Disabled]

SVM [Enabled]

Enables or disables CPU virtualization. Configuration options: [Disabled] [Enabled]

C-state Pmin

Enables or disables C-State Pmin. Configuration options: [Disabled] [Enabled]

2.5.2 SATA Configuration

While entering Setup, the BIOS automatically detects the presence of SATA devices. The SATA Port items show **Not Present** if no SATA device is installed to the corresponding SATA port.

OnChip SATA Channel [Enabled]

Enables or disables onboard channel SATA port. Configuration options: [Disabled] [Enabled]

OnChip SATA Type [IDE]

Allows you to set the SATA configuration.

[IDE] Set to [IDE] when you want to use the Serial ATA hard disk drives as Parallel ATA physical storage devices.

[RAID] Set to [RAID] when you want to create a RAID configuration from the SATA hard disk drives.

[AHCI] Set to [AHCI] when you want the SATA hard disk drives to use the AHCI (Advanced Host Controller Interface). The AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands.

SATA Port 5 - Port 6 [AHCI or RAID]

This item only appears when the previous item is set to [RAID] or [AHCI]. If Port 5-6 are configured as [AHCI or RAID], the ports can only be used under OS with driver installed. Set to [IDE] instead of [AHCI or RAID] to access devices on Port 5-6 before entering OS. Configuration options: [AHCI or RAID] [IDE]

Board SATA RAID ROM [RAID]

This item only appears when the previous item is set to [RAID].
Configuration options: [Disabled] [Legacy ROM] [UEFI Driver]

S.M.A.R.T. Status Check [Enabled]

S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) is a monitor system. When read/write of your hard disk errors occur, this feature allows the hard disk to report warning messages during the POST. Configuration options: [Enabled] [Disabled]

2.5.3 USB Configuration

The items in this menu allow you to change the USB-related features.

The **USB Devices** item shows the auto-detected values. If no USB device is detected, the item shows None.

Legacy USB Support [Enabled]

[Enabled] Enables the support for USB devices on legacy operating systems (OS).

[Disabled] The USB devices can be used only for the BIOS setup program.

[Auto] Allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

EHCI Hand-off [Disabled]

[Enabled] Enables the support for operating systems without an EHCI hand-off feature.

[Disabled] Disables the function.

2.5.4 NB Configuration

iGPU Multi-Monitor [Disabled]

Allows you to enable the iGPU Multi-Monitor. For Lucid Virtu MVP function support, set this item to [Enabled] to empower both integrated and discrete graphics. iGPU shared system memory size is fixed in 64MB. Configuration options: [Disabled] [Enabled]

Primary Video Device [PCIE / PCI Video]

Selects the primary display device. Configuration options: [IGFX Video] [PCIE / PCI Video]

Integrated Graphics [Auto]

Enables the integrated graphics controller. Configuration options: [Auto] [Force]

2.5.5 Onboard Devices Configuration

HD Audio Device [Enabled]

[Enabled] Enables the High Definition Audio Controller.

[Disabled] Disables the controller.

The following two items appear only when you set the **HD Audio Device** item to [Enabled].

Front Panel Type [HD]

Allows you to set the front panel audio connector (AAFP) mode to legacy AC'97 or high-definition audio depending on the audio standard that the front panel audio module supports.

[HD] Sets the front panel audio connector (AAFP) mode to high definition audio.

[AC97] Sets the front panel audio connector (AAFP) mode to legacy AC'97.

SPDIF Out Type [SPDIF]

[SPDIF] Sets to [SPDIF] for SPDIF audio output.

[HDMI] Sets to [HDMI] for HDMI audio output.

Realtek LAN Controller [Enabled]

[Enabled] Enables the Realtek LAN controller.

[Disabled] Disables the Realtek LAN controller.

Realtek PXE OPROM [Disabled]

This item appears only when you set the previous item to [Enabled] and allows you to enable or disable the Rom Help of the Realtek LAN controller.

Configuration options: [Enabled] [Disabled]

Serial Port Configuration [Enabled]

The sub-items in this menu allow you to set the serial port configuration.

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM).
Configuration options: [Enabled] [Disabled]

Change Settings [IO=3F8h; IRQ=4]

Allows you to select the Serial Port base address.
Configuration options: [IO=3F8h; IRQ=4] [IO=2F8h; IRQ=3] [IO=3E8h; IRQ=4] [IO=2E8h; IRQ=3]

Parallel Port Configuration [Enabled]

The sub-items in this menu allow you to set the parallel port configuration.

Parallel Port [Enabled]

Allows you to enable or disable the parallel port (LPT/LPTE).
Configuration options: [Enabled] [Disabled]

Change Settings [Auto]

Allows you to select the Parallel Port base address.
Configuration options: [IO=378h; IRQ=5] [IO=378h; IRQ=5,6,7,9,10,11,12] [IO=278h; IRQ=5,6,7,9,10,11,12]

Device Mode [Auto]

Allows you to set the Printer port mode.
Configuration options: [Standard Parallel Port Mode] [EPP Mode] [ECP Mode] [EPP Mode & ECP Mode]

2.5.6 APM

Restore AC Power Loss [Power Off]

[Power On] The system goes into on state after an AC power loss.

[Power Off] The system goes into off state after an AC power loss.

[Last State] The system goes into either off or on state, whatever the system state was before the AC power loss.

Power On By PME [Disabled]

[Disabled] Disables the PME to wake up by PCI/PCIE devices.

[Enabled] Allows you to turn on the system through a PCI/PCIE LAN or modem card. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.

Power On By Ring [Disabled]

[Disabled] Disables Ring to generate a wake event.

[Enabled] Enables Ring to generate a wake event.

Power On By RTC [Disabled]

[Disabled] Disables RTC to generate a wake event.

[Enabled] When set to [Enabled], the items **RTC Alarm Date (Days)** and **Hour/ Minute/Second** will become user-configurable with set values.

2.5.7 Network Stack

Network Stack [Disabled]

This item allows user to disable or enable the UEFI network stack.

Configuration options: [Disabled] [Enabled]

Ipv4 PXE Support [Enabled]

This item appears only when you set the Network Stack item to [Enabled]. When this item is disabled, the IPV4 PXE boot option will not be created.

Configuration options: [Disabled] [Enabled]

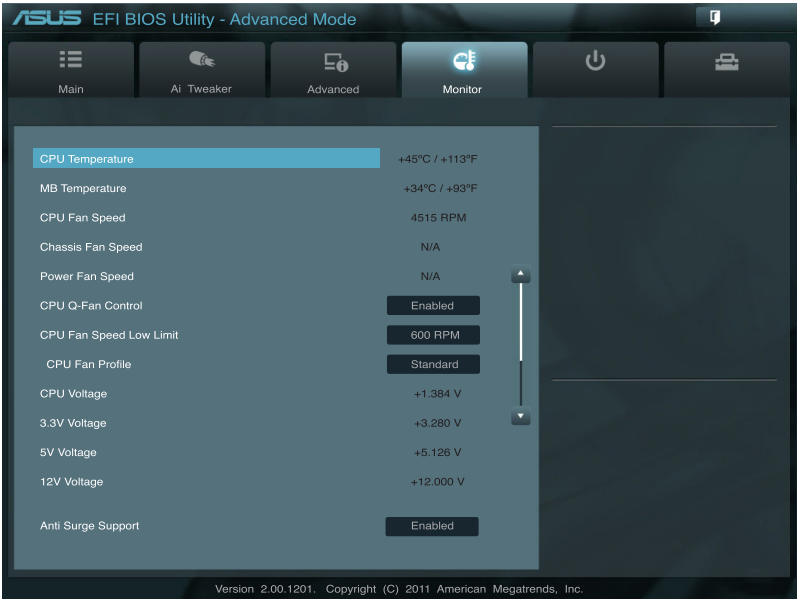
Ipv6 PXE Support [Enabled]

This item appears only when you set the Network Stack item to [Enabled]. When this item is disabled, the IPV6 PXE boot option will not be created.

Configuration options: [Disabled] [Enabled]

2.6 Monitor menu

The Monitor menu displays the system temperature/power status, and allows you to change the fan settings.



2.6.1 CPU Temperature / MB Temperature [xxx°C/xxx°F]

The onboard hardware monitor automatically detects and displays the CPU and motherboard temperatures. Select **Ignore** if you do not wish to display the detected temperatures.

2.6.2 CPU / Chassis / Power Fan Speed [xxxx RPM] or [Ignore] / [N/A]

The onboard hardware monitor automatically detects and displays the CPU / chassis / Power fan speeds in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows **N/A**. Select **Ignore** if you do not wish to display the detected speed.

2.6.3 CPU Q-Fan Control [Enabled]

[Disabled] Disables the CPU Q-Fan control feature.

[Enabled] Enables the CPU Q-Fan control feature.

CPU Fan Speed Low Limit [600 RPM]

This item appears only when you enable the **CPU Q-Fan Control** feature and allows you to disable or set the CPU fan warning speed.
Configuration options: [Ignore] [200RPM] [300 RPM] [400 RPM] [500 RPM] [600 RPM]

CPU Fan Profile [Standard]

This item appears only when you enable the CPU Q-Fan Control feature and allows you to set the appropriate performance level of the CPU fan.

[Standard] Sets to [Standard] to make the CPU fan automatically adjust depending on the CPU temperature.

[Silent] Sets to [Silent] to minimize the fan speed for quiet CPU fan operation.

[Turbo] Sets to [Turbo] to achieve maximum CPU fan speed.

[Manual] Sets to [Manual] to assign detailed fan speed control parameters.

The following four items appear only when you set **CPU Fan Profile** to [Manual].

CPU Upper Temperature [70ºC]
Use the <+> and <-> keys to adjust the upper limit of the CPU temperature. The values range from 20ºC to 90ºC.

CPU Fan Max. Duty Cycle(%) [100%]
Use the <+> and <-> keys to adjust the maximum CPU fan duty cycle. The values range from 40% to 100%. When the CPU temperature reaches the upper limit, the CPU fan will operate at the maximum duty cycle.

CPU Lower Temperature [20ºC]
Use the <+> and <-> keys to adjust the lower limit of the CPU temperature. The values range from 20ºC to 75ºC.

CPU Fan Min. Duty Cycle(%) [40%]
Use the <+> and <-> keys to adjust the minimum CPU fan duty cycle. The values range from 40% to 100%. When the CPU temperature is under the lower limit, the CPU fan will operate at the minimum duty cycle.

2.6.4 CPU Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. Select **Ignore** if you do not want to detect this item.

2.6.5 Anti Surge Support [Enabled]

This item allows you to enable or disable the Anti Surge function.
Configuration options: [Disabled] [Enabled]

2.7 Boot menu

The Boot menu items allow you to change the system boot options.

2.7.1 Bootup NumLock State [On]

[On] Sets the power-on state of the NumLock to [On].

[Off] Sets the power-on state of the NumLock to [Off].

2.7.2 Full Screen Logo [Enabled]

[Enabled] Enables the full screen logo display feature.

[Disabled] Disables the full screen logo display feature.

Set this item to [Enabled] to use the ASUS MyLogo 2™ feature.

Post Report [5 sec]

This item appears only when the Full Screen Logo item is set to [Disabled] and allows you to set the waiting time for the system to display the post report. Configuration options: [1 sec] [2 sec] [3 sec] [4 sec] [5 sec] [6 sec] [7 sec] [8 sec] [9 sec] [10 sec] [Until Press ESC]

2.7.3 Wait for 'F1' If Error [Enabled]

When this item is set to [Enabled], the system waits for the F1 key to be pressed when error occurs. Configuration options: [Disabled] [Enabled]

2.7.4 Option ROM Messages [Force BIOS]

[Force BIOS] The third-party ROM messages will be forced to display during the boot sequence.

[Keep Current] The third-party ROM messages will be displayed only if the third-party manufacturer had set the add-on device to do so.

2.7.5 Setup Mode [EZ Mode]

[Advanced Mode] Sets Advanced Mode as the default screen for entering the BIOS setup program.

[EZ Mode] Sets EZ Mode as the default screen for entering the BIOS setup program.

2.7.6 UEFI Legacy Boot

Enables or disables the booting function of UEFI or legacy devices.

Configuration options: [Enabled both UEFI and Legacy] [Disabled UEFI] [Disabled Legacy]

2.7.7 PCI ROM Priority

In case of multiple option ROMs (Legacy and EFI compatible), this item allows you to specifie what PCI option ROM to launch. Configuration options: [Legacy ROM] [EFI Compatible ROM]

2.7.8 Boot Option Priorities

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

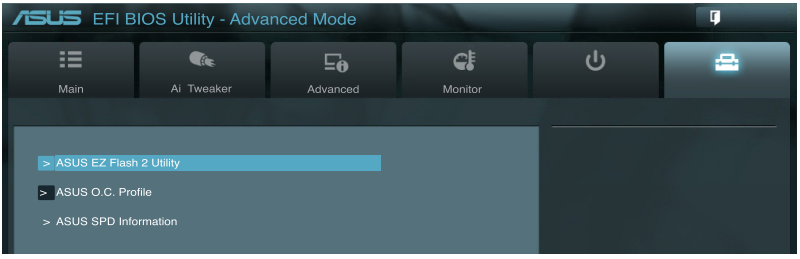
- To select the boot device during system startup, press <F8> when ASUS Logo appears.
- To access Windows OS in Safe Mode, press <F8> after POST.

2.7.9 Boot Override

These items displays the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.

2.8 Tools menu

The Tools menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu.



2.8.1 ASUS EZ Flash 2 Utility

Allows you to run ASUS EZ Flash 2. Press [Enter] to launch the ASUS EZ Flash 2 screen.

For more details, see section **2.1.2 ASUS EZ Flash 2**.

2.8.2 ASUS O.C. Profile

This item allows you to store or load multiple BIOS settings.

The **Setup Profile Status** items show **Not Installed** if no profile is created.

Save to Profile

Allows you to save the current BIOS settings to the BIOS Flash, and create a profile. Key in a profile number from one to eight, press <Enter>, and then select **Yes**.

Load from Profile

Allows you to load the previous BIOS settings saved in the BIOS Flash. Key in the profile number that saved your CMOS settings, press <Enter>, and then select **Yes**.

- DO NOT shut down or reset the system while updating the BIOS to prevent the system boot failure!
- We recommend that you update the BIOS file only coming from the same memory/ CPU configuration and BIOS version.

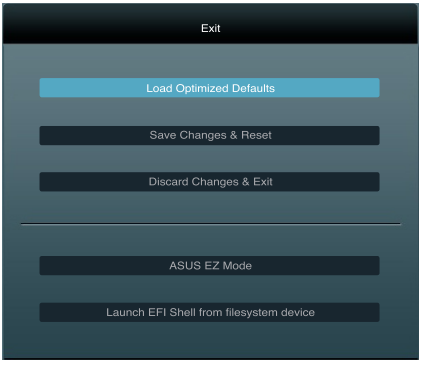
2.8.3 ASUS SPD Information

DIMM Slot # [DIMM_A1]

Displays the Serial Presence Detect (SPD) information of the DIMM module installed on the selected slot. Configuration options: [DIMM_A1] [DIMM_B1]

2.9 Exit menu

The Exit menu items allow you to load the optimal default values for the BIOS items, and save or discard your changes to the BIOS items. You can access the **EZ Mode** from the Exit menu.



Load Optimized Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select Yes to load the default values.

Save Changes & Reset

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved. When you select this option or if you press <F10>, a confirmation window appears. Select Yes to save changes and exit.

Discard Changes & Exit

This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select Yes to discard changes and exit.

ASUS EZ Mode

This option allows you to enter the EZ Mode screen.

Launch EFI Shell from filesystem device

This option allows you to attempt to launch the UEFI Shell application (shellx64.efi) from one of the available devices that have a filesystem.

Appendices

Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IC: Canadian Compliance Statement

Complies with the Canadian ICES-003 Class B specifications. This device complies with RSS 210 of Industry Canada. This Class B device meets all the requirements of the Canadian interference-causing equipment regulations.

This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cut appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada. Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Cet appareil est conforme aux normes CNR exemptes de licence d'Industrie Canada. Le fonctionnement est soumis aux deux conditions suivantes :

(1) cet appareil ne doit pas provoquer d'interférences et

(2) cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité de l'appareil.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

VCCI: Japan Compliance Statement

VCCI Class B Statement

情報処理装置等電波障害自主規制について
この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は家庭環境で使用されることを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

KC: Korea Warning Statement

B급 기기 (가정용 방송통신기자재)
이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

*당해 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없습니다.

REACH

Complying with the REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals) regulatory framework, we published the chemical substances in our products at ASUS REACH website at http://csr.asus.com/english/REACH.htm.

DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

ASUS Recycling/Takeback Services

ASUS recycling and takeback programs come from our commitment to the highest standards for protecting our environment. We believe in providing solutions for you to be able to responsibly recycle our products, batteries, other components as well as the packaging materials. Please go to http://csr.asus.com/english/Takeback.htm for detailed recycling information in different regions.

ASUS contact information

ASUSTeK COMPUTER INC.

Address	15 Li-Te Road, Peitou, Taipei, Taiwan 11259
Telephone	+886-2-2894-3447
Fax	+886-2-2890-7798
E-mail	info@asus.com.tw
Web site	www.asus.com.tw

Technical Support

Telephone	+86-21-38429911
Online support	support.asus.com

ASUS COMPUTER INTERNATIONAL (America)

Address	800 Corporate Way, Fremont, CA 94539, USA
Telephone	+1-812-282-3777
Fax	+1-510-608-4555
Web site	usa.asus.com

Technical Support

Telephone	+1-812-282-2787
Support fax	+1-812-284-0883
Online support	support.asus.com

ASUS COMPUTER GmbH (Germany and Austria)

Address	Harkort Str. 21-23, D-40880 Ratingen, Germany
Fax	+49-2102-959911
Web site	www.asus.de
Online contact	www.asus.de/sales

Technical Support

Telephone	+49-1805-010923*
Support Fax	+49-2102-9599-11
Online support	support.asus.com

*** EUR 0.14/minute from a German fixed landline; EUR 0.42/minute from a mobile phone.**

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)

Responsible Party Name: **Asus Computer International**

Address: **800 Corporate Way, Fremont, CA 94539.**

Phone/Fax No: **(510)739-3777/(510)608-4555**

hereby declares that the product

Product Name : Motherboard

Model Number : F1A55-M LE R2.0

Conforms to the following specifications:

- ☒ FCC Part 15, Subpart B, Unintentional Radiators
- ☐ FCC Part 15, Subpart C, Intentional Radiators
- ☐ FCC Part 15, Subpart E, Intentional Radiators

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name : **Steve Chang / President**

Signature :

Date : **Apr. 09, 2012**

Ver. 110101

EC Declaration of Conformity

ASUS Inspiring Innovation • Persistent Perfection

We, the undersigned,

Manufacturer:	ASUSTek COMPUTER INC.
Address, City:	No. 150, LI-TE RD., PEITOU, TAIPEI 112, TAIWAN R.O.C.
Country:	TAIWAN
Authorized representative in Europe:	ASUS COMPUTER GmbH
Address, City:	HARKORT STR. 21-23, 40880 RATINGEN
Country:	GERMANY

declare the following apparatus:

Product name :	**Motherboard**
Model name :	**F1A55-M LE R2.0**

conform with the essential requirements of the following directives:

☒2004/108/EC-EMC Directive

☒ EN 55022:2010	☒ EN 55024:2010
☒ EN 61000-3-2:2006+A1: 2009+A2: 2009	☒ EN 61000-3-3:2008
☐ EN 55013:2001+A1:2003+A2:2006	☐ EN 55020:2007

☐1999/5/EC-R &TTE Directive

☐ EN 300 328 V1.7.1(2006-10)	☐ EN 301 489-1 V1.8.1(2008-04)
☐ EN 300 440-1 V1.4.1(2008-05)	☐ EN 301 489-3 V1.4.1(2002-08)
☐ EN 300 440-2 V1.2.1(2008-03)	☐ EN 301 489-4 V1.3.1(2002-08)
☐ EN 301 511 V9.0.2(2003-03)	☐ EN 301 489-7 V1.3.1(2005-11)
☐ EN 301 908-1 V3.2.1(2007-05)	☐ EN 301 489-9 V1.4.1(2007-11)
☐ EN 301 908-2 V3.2.1(2007-05)	☐ EN 301 489-17 V2.1.1(2009-05)
☐ EN 301 893 V1.4.1(2005-03)	☐ EN 301 489-24 V1.4.1(2007-09)
☐ EN 302 544-2 V1.1.1(2009-01)	☐ EN 302 326-2 V1.2.2(2007-06)
☐ EN 50360:2001	☐ EN 302 326-3 V1.3.1(2007-09)
☐ EN 50371:2002	☐ EN 301 357-2 V1.3.1(2006-05)
☐ EN 50385:2002	☐ EN 302 623 V1.1.1(2009-01)

☒2006/95/EC-LVD Directive

☒ EN 60950-1 / A11:2009	☐ EN 60065:2002+A1:2006+A11:2008
☐ EN 60950-1 / A12:2011	☐ EN 60065:2002 / A12:2011

☐2009/125/EC-ErP Directive

Regulation (EC) No. 1275/2008	Regulation (EC) No. 278/2009
☐ EN 62301:2005	☐ EN 62301:2005
Regulation (EC) No. 642/2009	
☐ EN 62301:2005	Ver. 111121

☒CE marking CE (EC conformity marking)

Position : **CEO**

Name : **Jerry Shen**

Declaration Date: Apr. 09, 2012

Year to begin affixing CE marking: 2012

Signature : _____